

Figure 1

**BER for Rate 1/2 16QAM, N=512 and N=32768 bits, AWGN Channel**

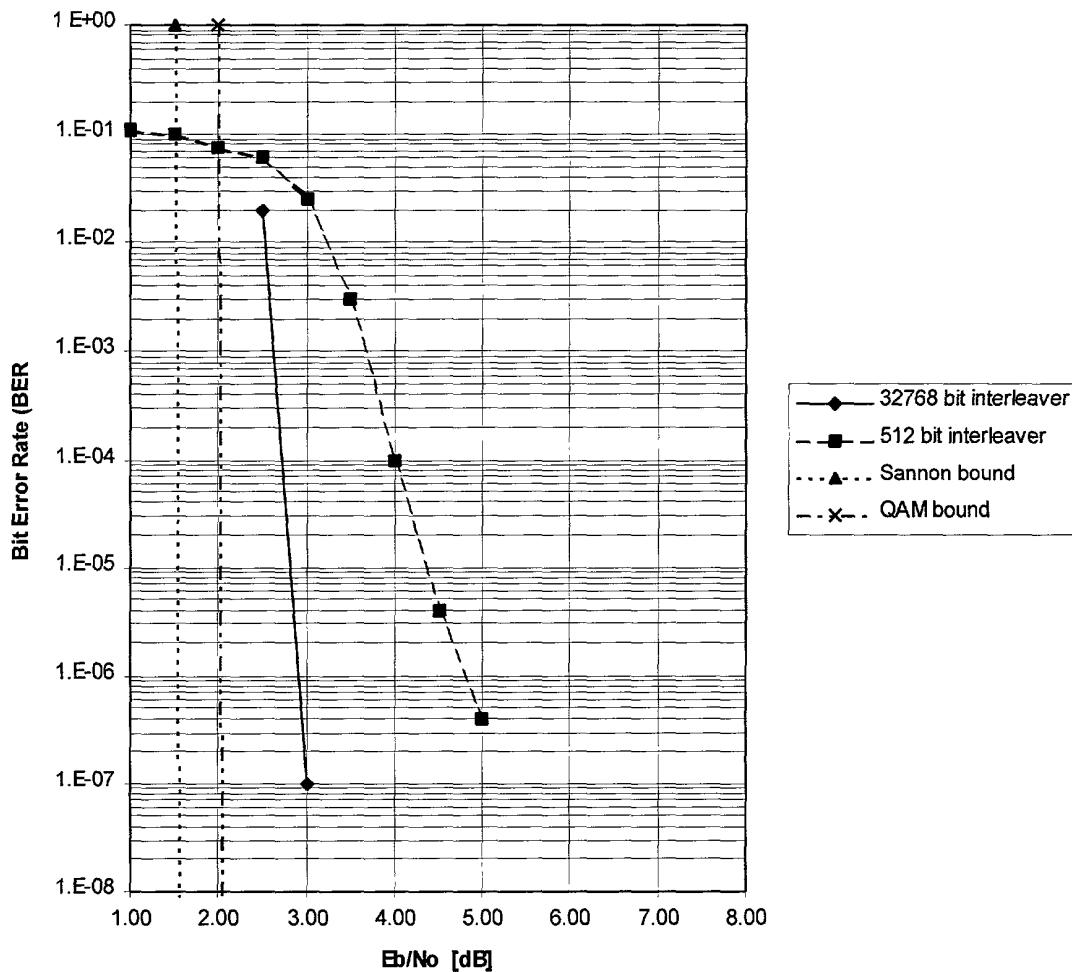


Figure 2

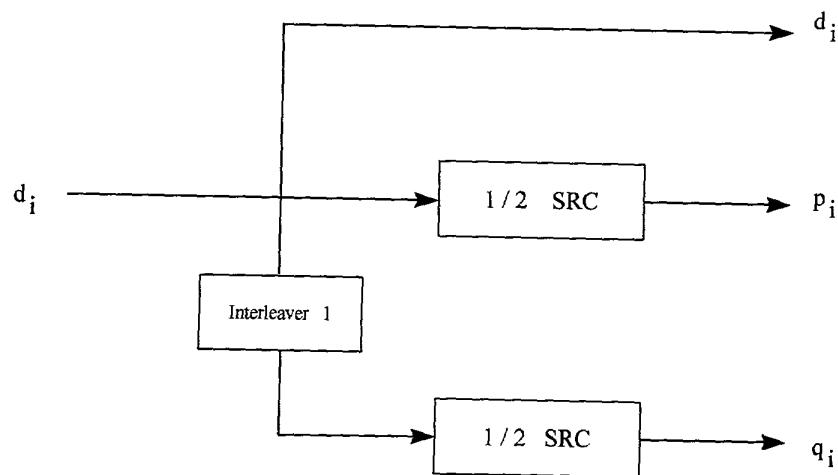


Figure 3

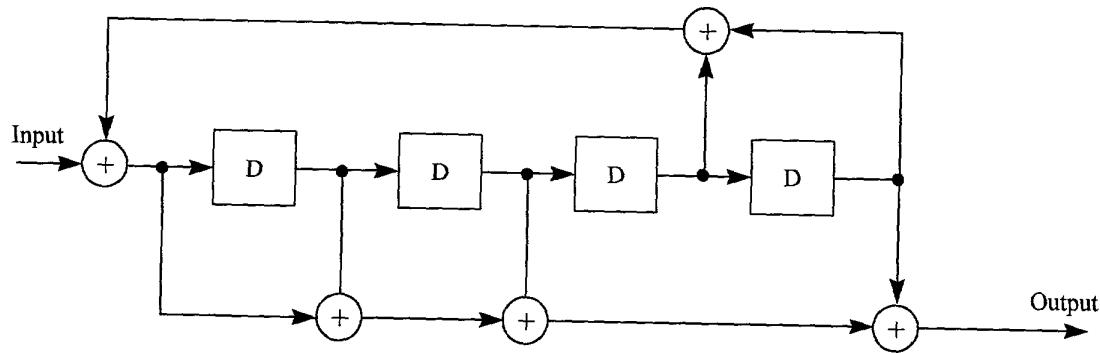


Figure 4

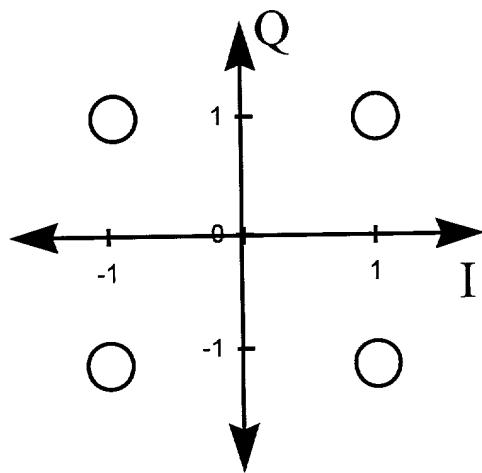


Figure 5

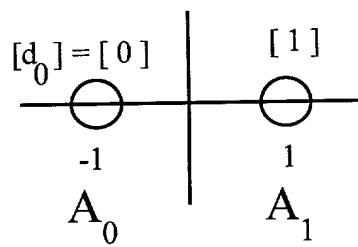


Figure 6

BER for Rate 2/6 4QAM N=1,024 bits AWGN Channel

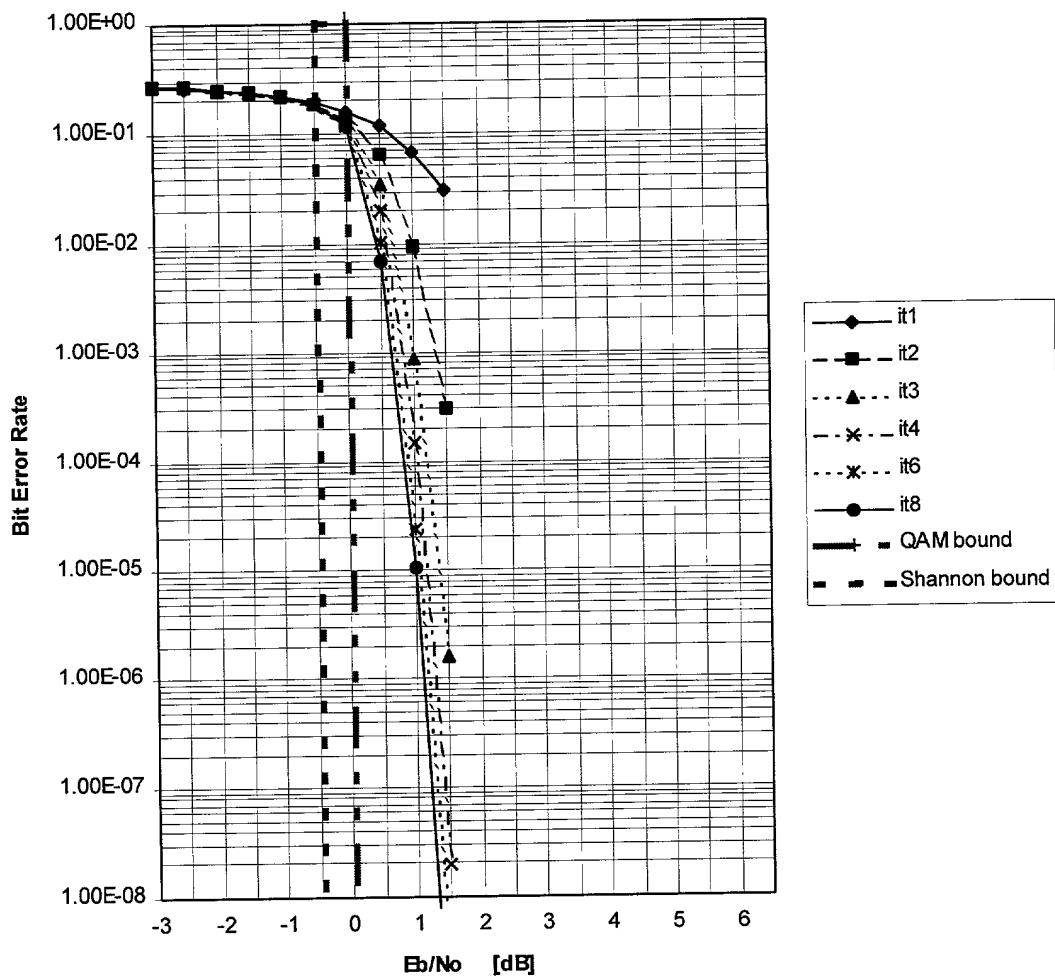


Figure 7

BER for Rate 2/4 4QAM N=1,024 bits AWGN Channel

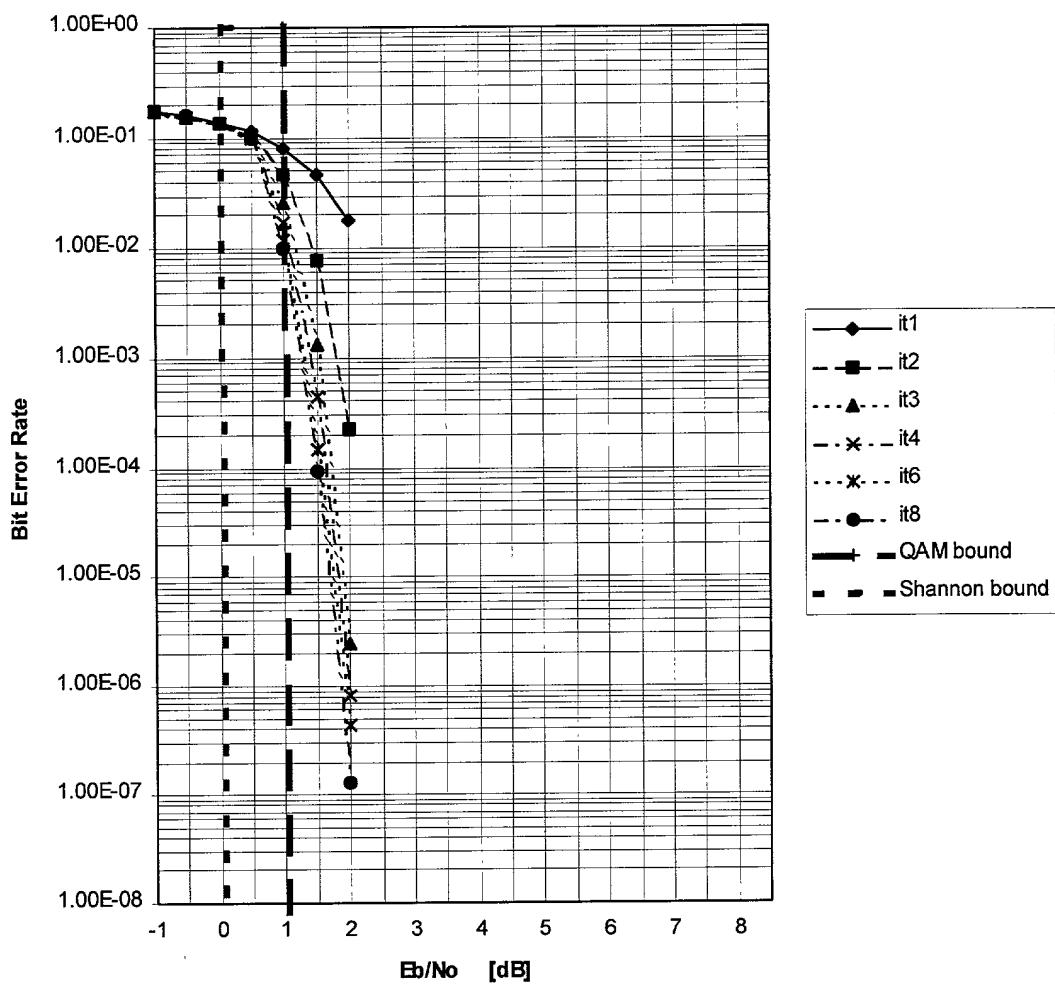


Figure 8

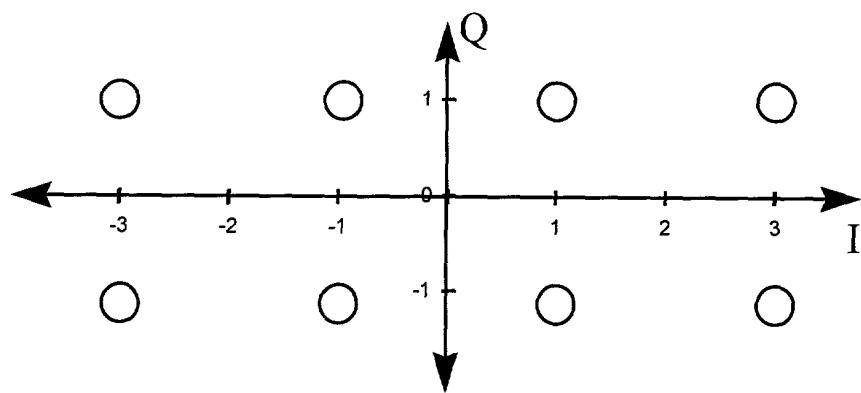


Figure 9

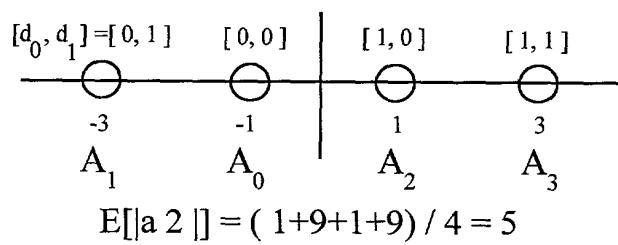


Figure 10

### BER for Rate 1/3 8QAM N=1,024 bits AWGN Channel

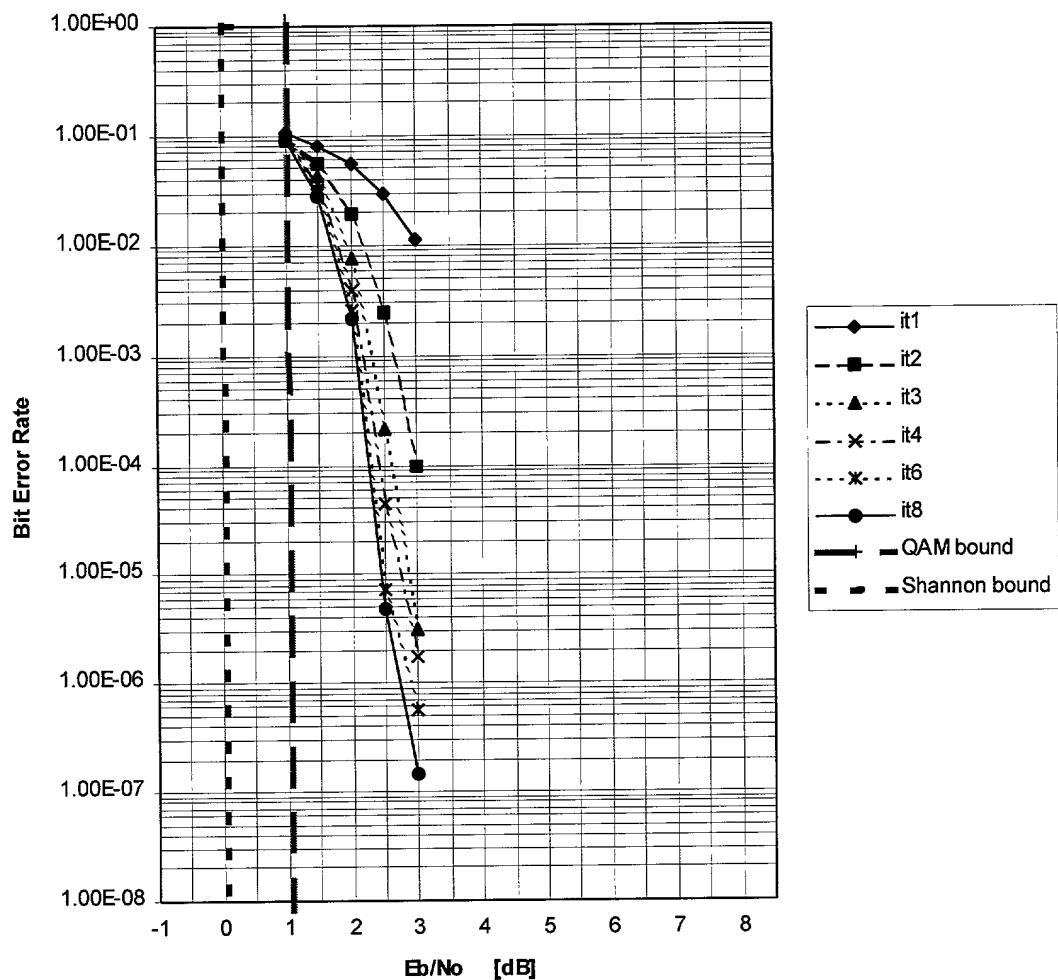


Figure 11

### BER for Rate 4/6 8QAM N=1,024 bits AWGN Channel

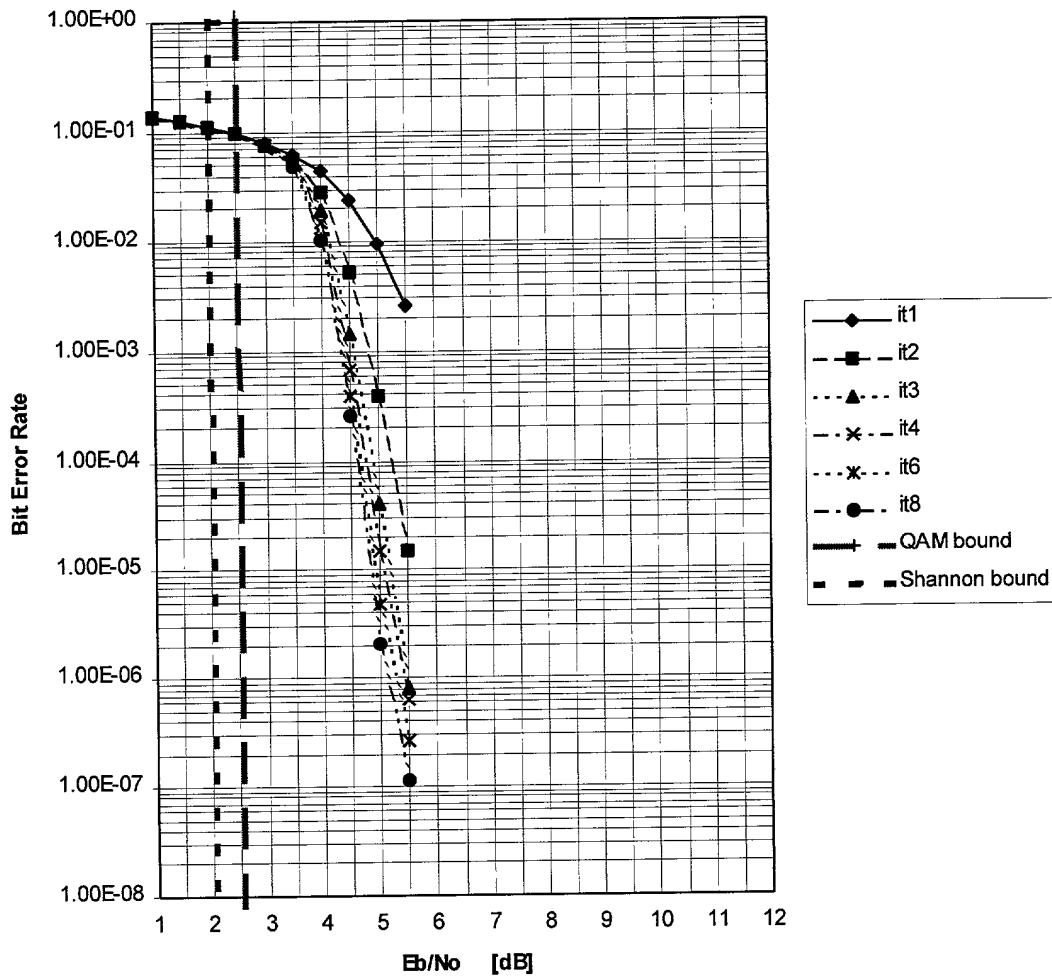


Figure 12

$$A_i = [u_1^k, u_2^k] \rightarrow I^k$$

$$B_j = [u_3^k, u_4^k] \rightarrow Q^k$$

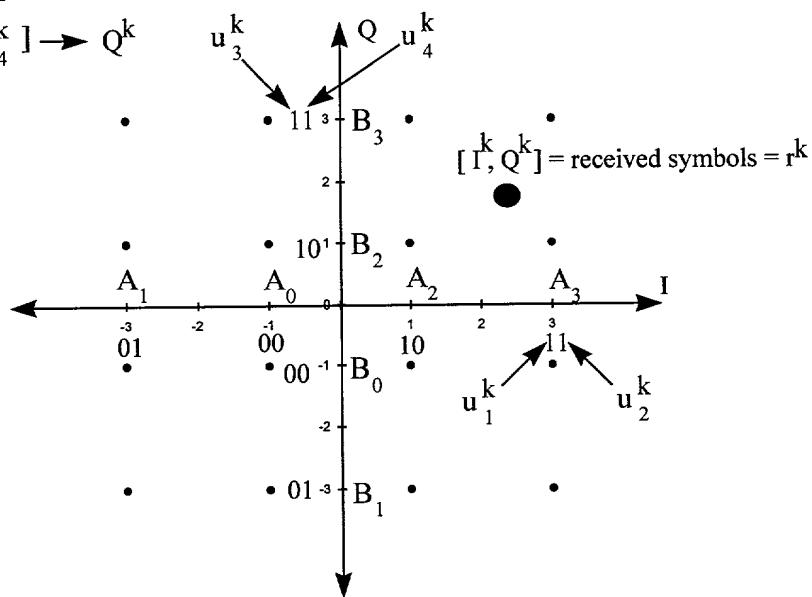


Figure 13

BER for Rate 1/2 16QAM, N=272 bits (odd-even), AWGN Channel

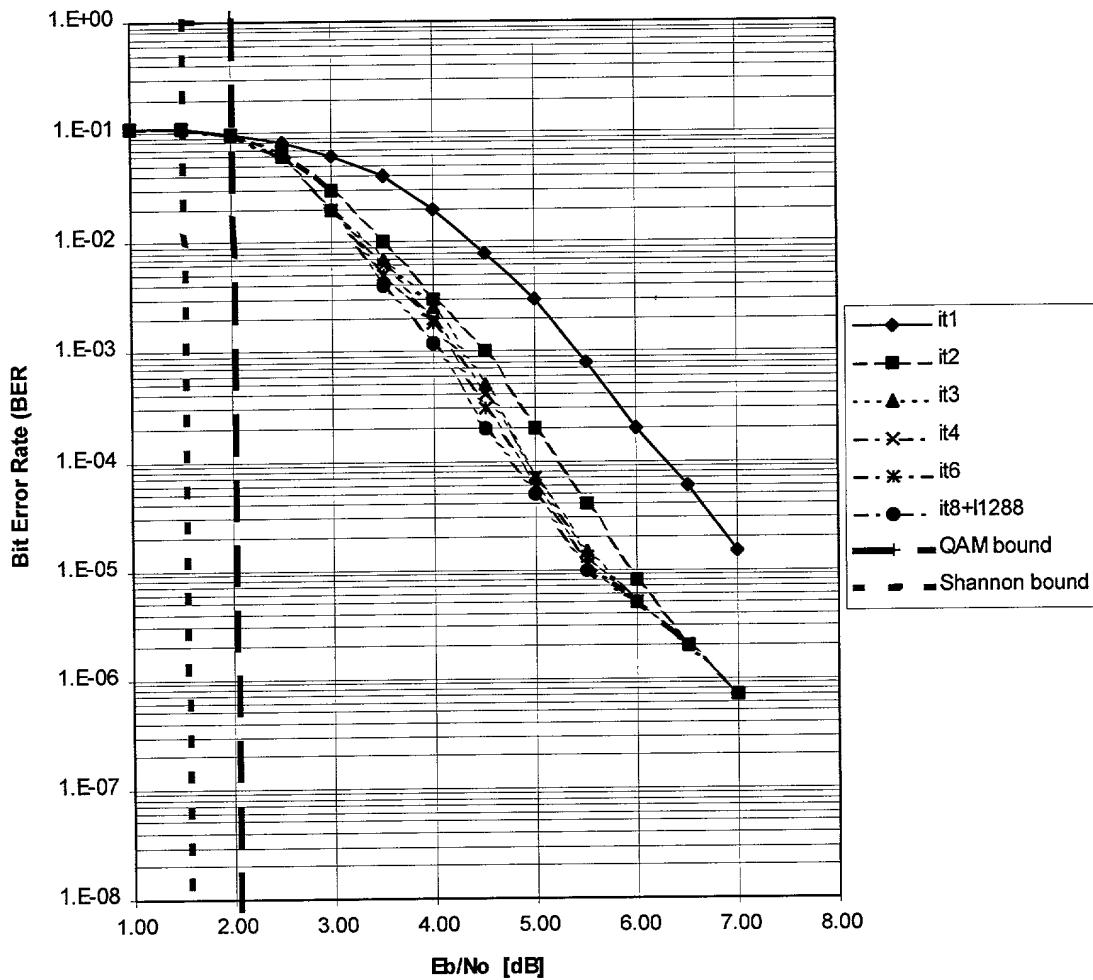


Figure 14

BER for Rate 1/2 16QAM, N=256 bits S-type, AWGN Channel

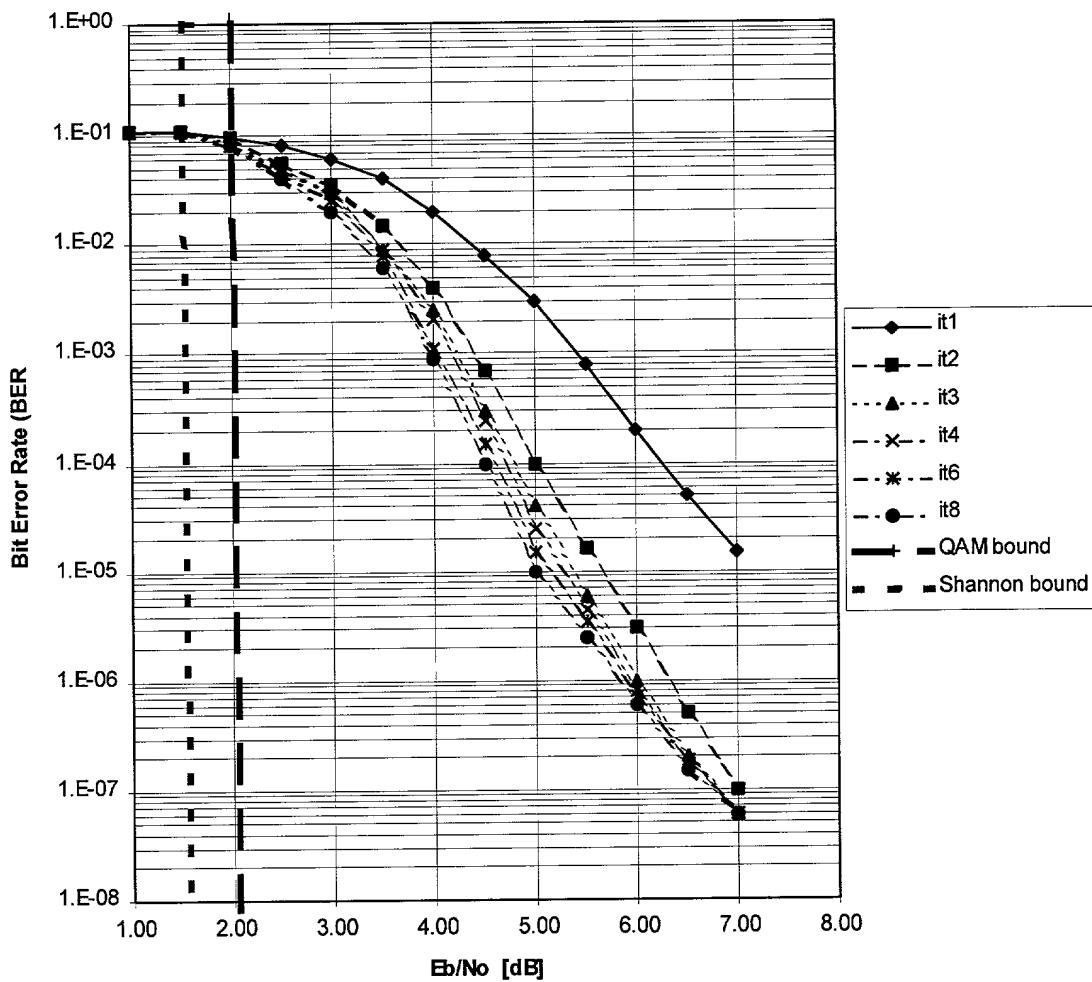


Figure 15

## BER for Rate 1/2 16QAM, N=512 bits S-type, AWGN Channel

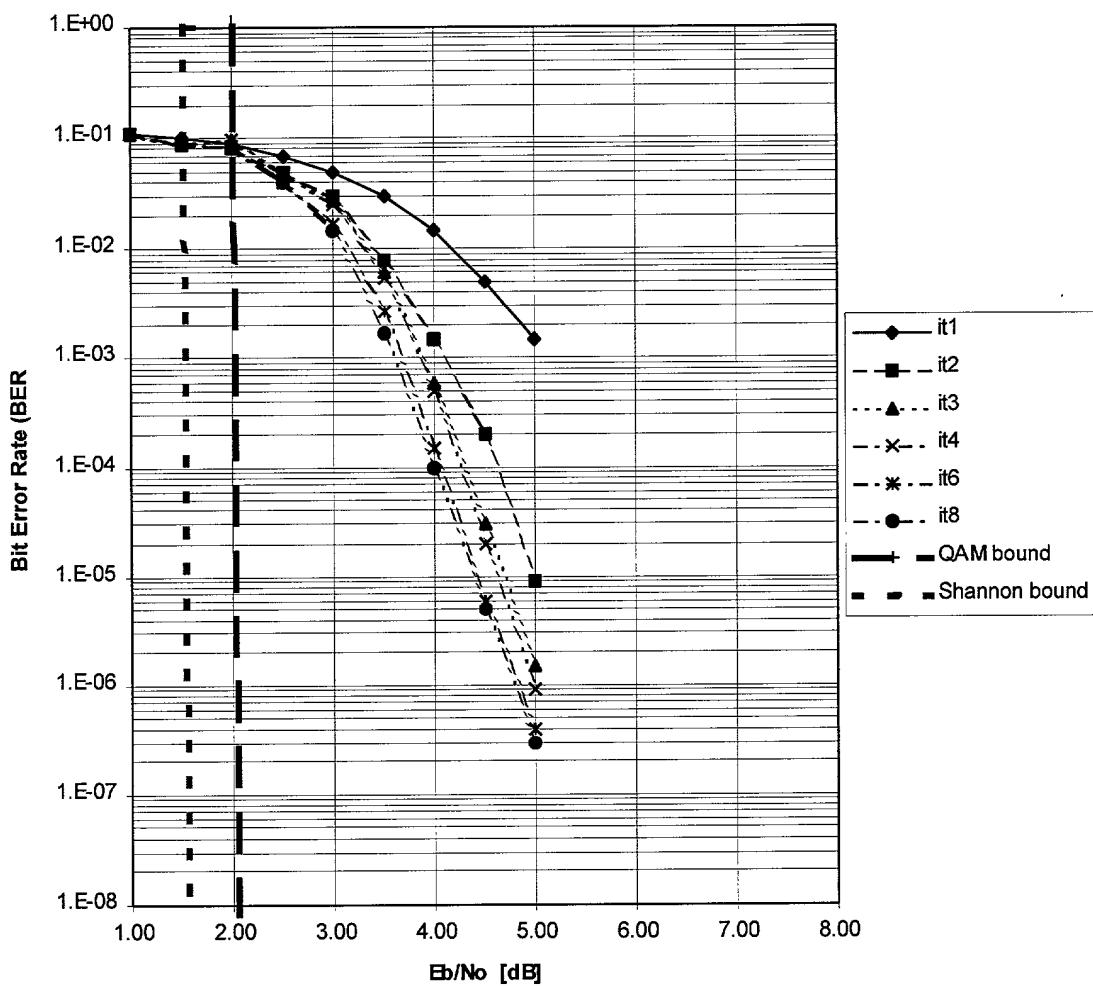


Figure 16

### BER for Rate 1/2 16QAM, N=768 bits S-type, AWGN Channel

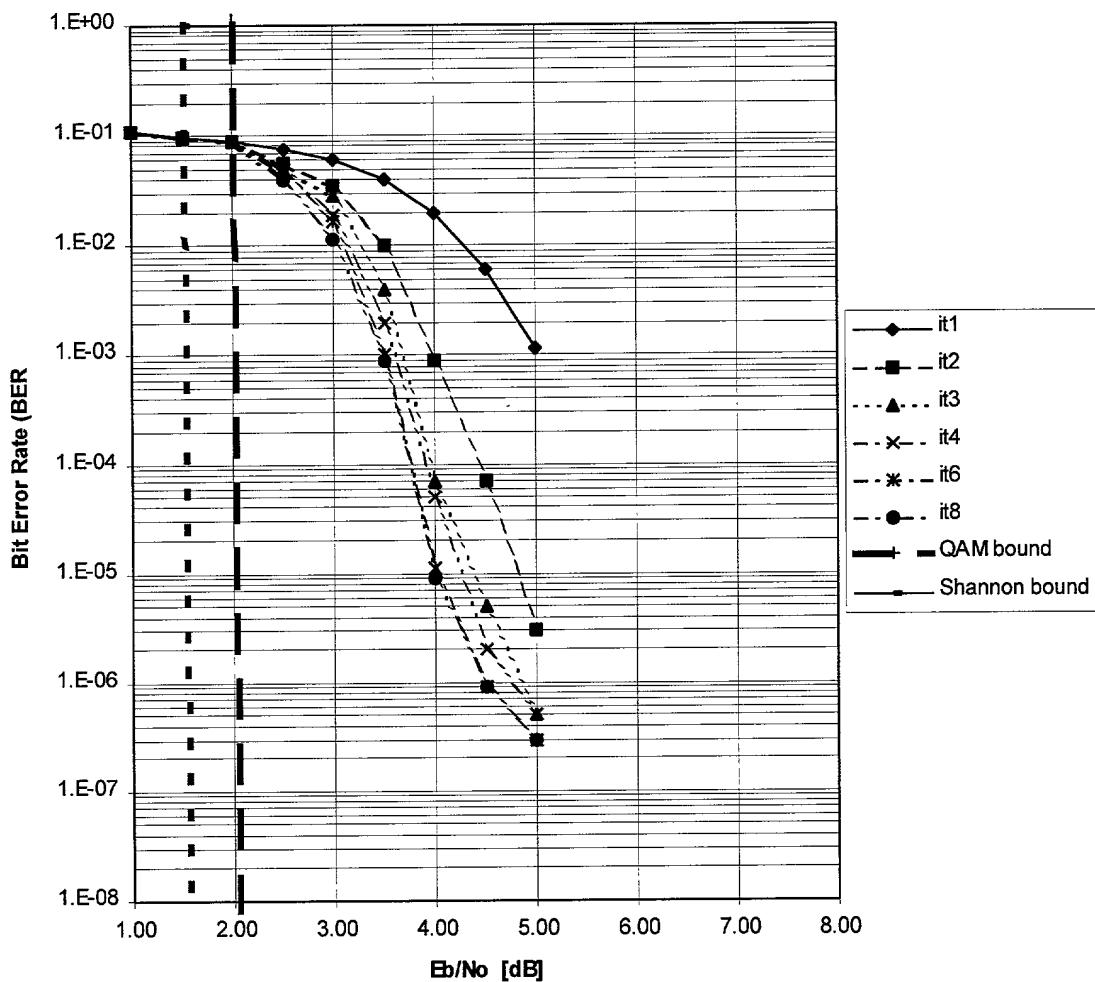


Figure 17

BER for Rate 1/2 16QAM, N=1024 bits S-type, AWGN Channel

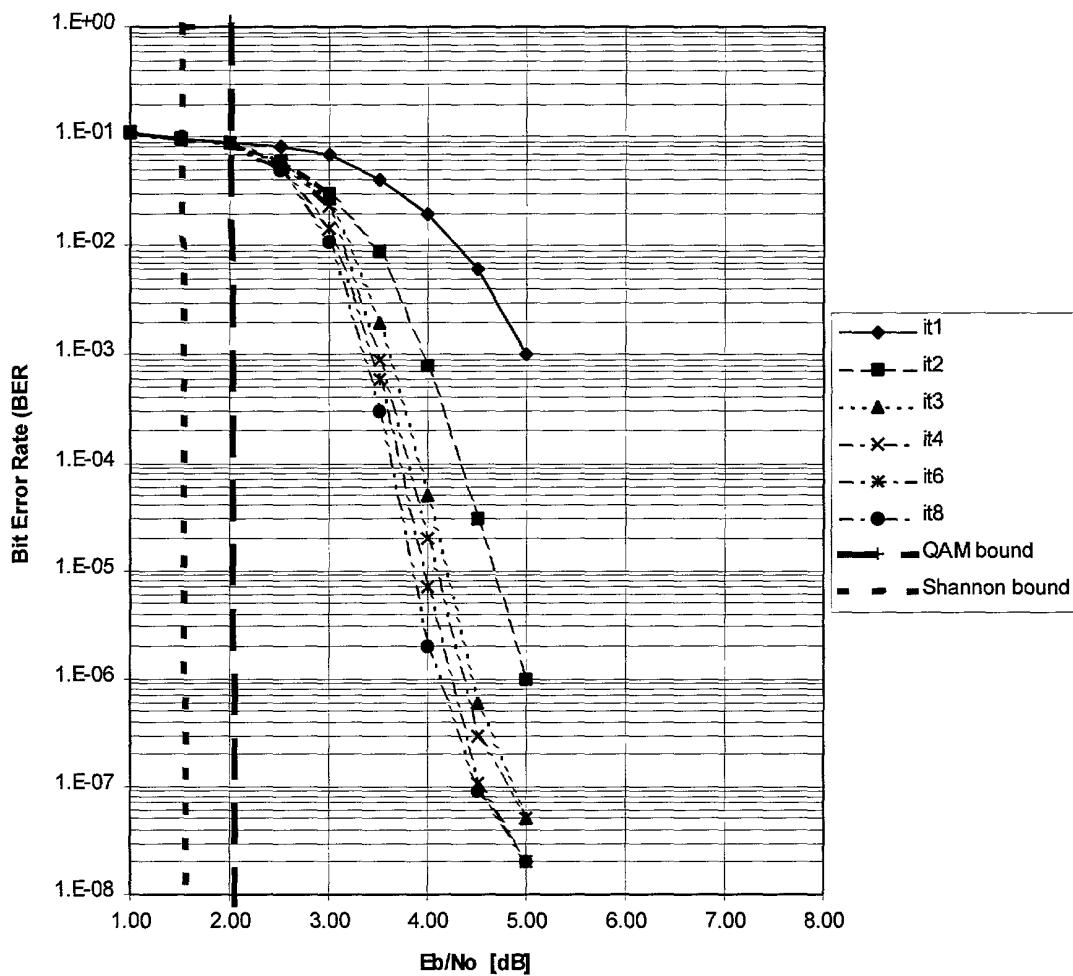


Figure 18

## BER for Rate 3/4 16QAM, N=6,144 bits S-type, AWGN Channel

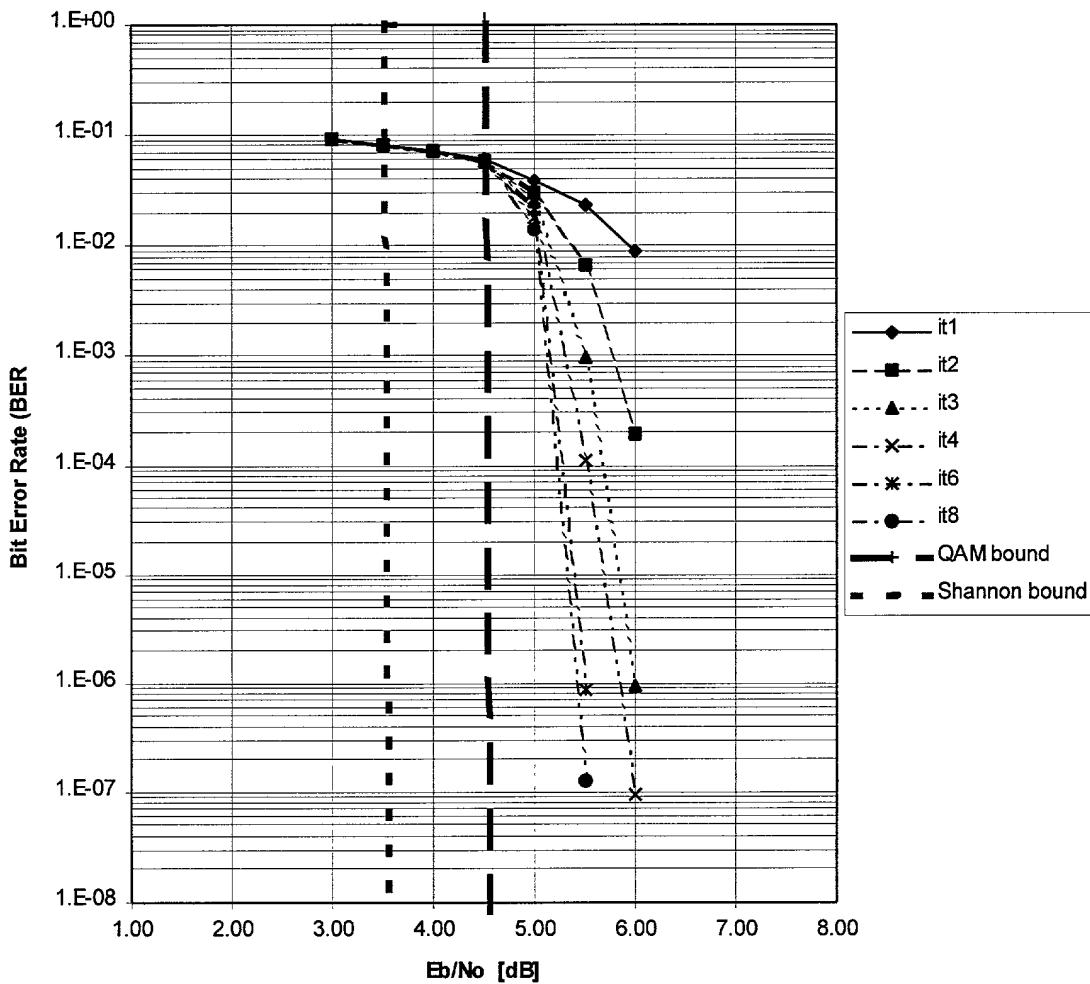


Figure 19

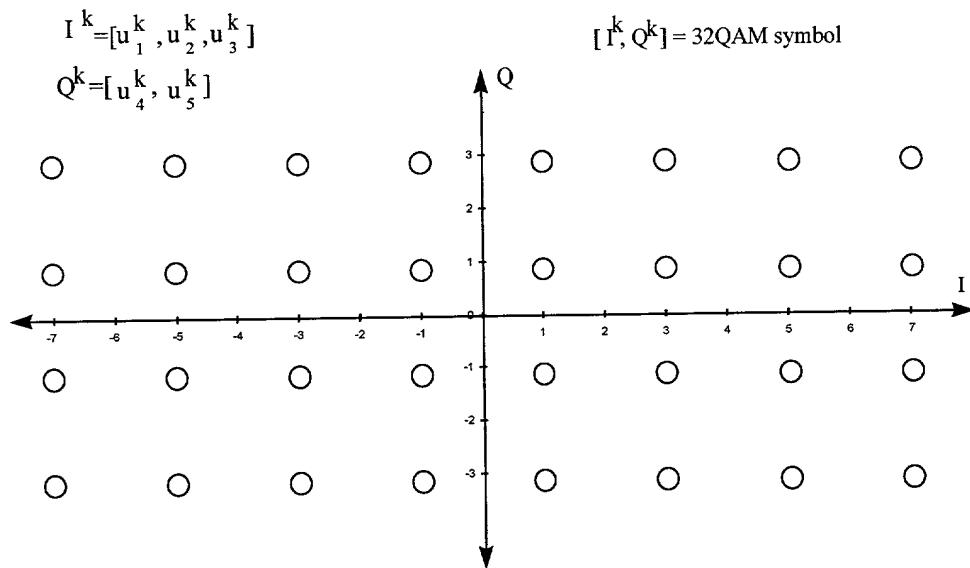
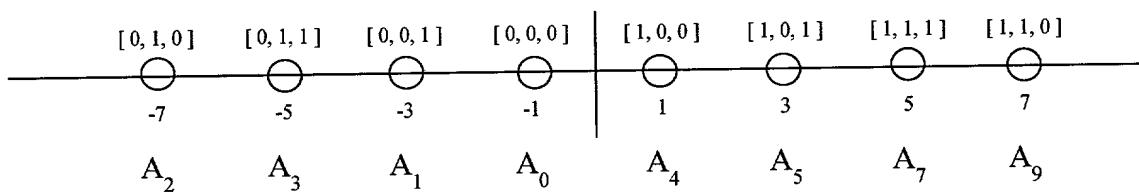


Figure 20



$$E[|a|^2] = (1+9+25+49)/4 = 21$$

Figure 21

## BER for Rate 3/5 32QAM, N=6,144 bits S-type, AWGN Channel

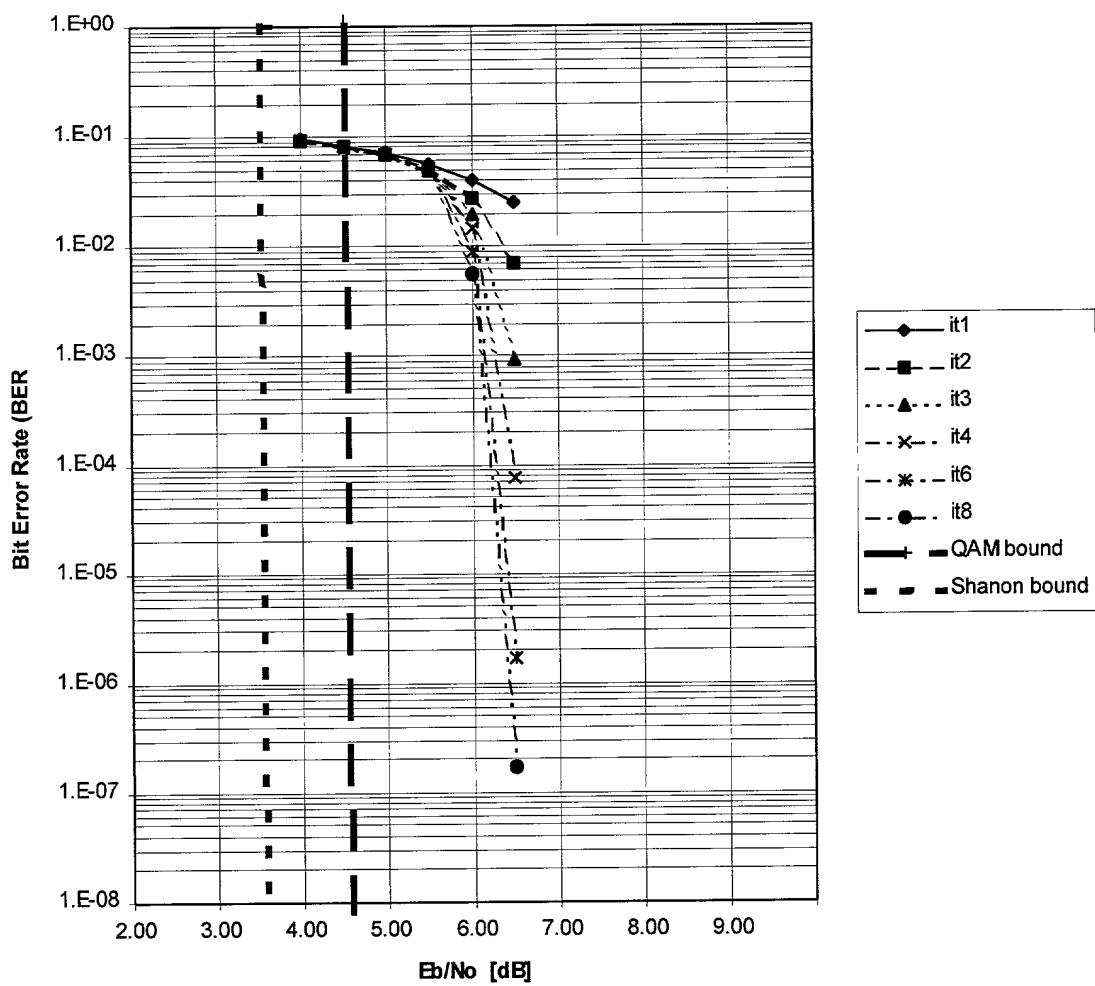
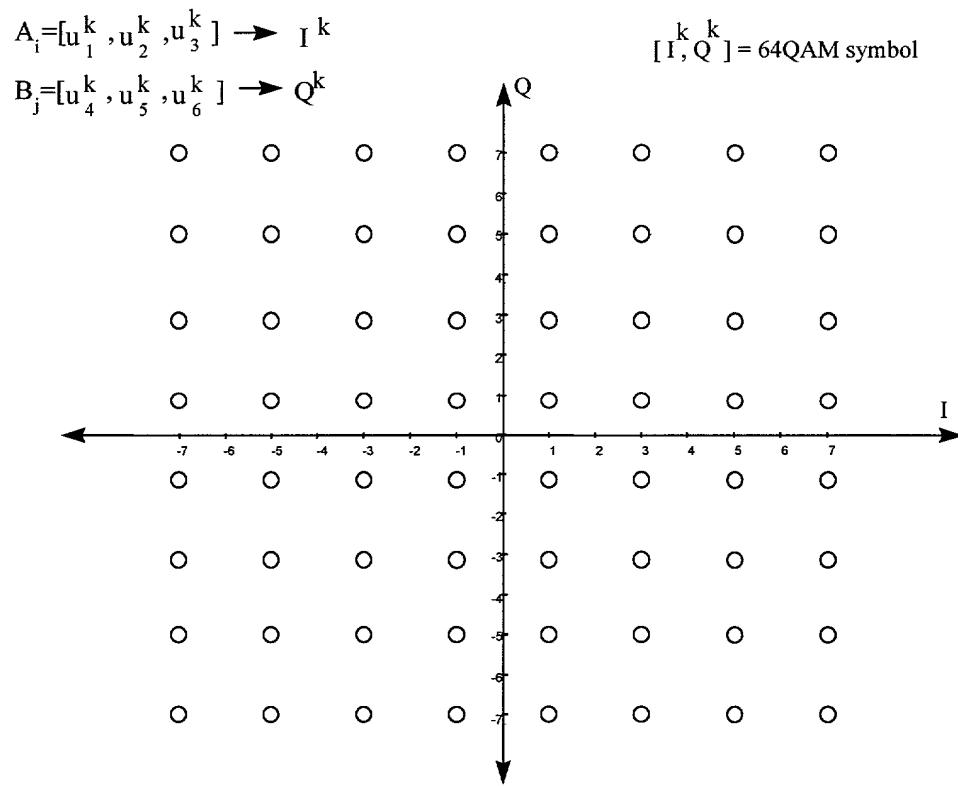


Figure 22



BER for Rate 3/6 64QAM, N=6,144 bits S-type, AWGN Channel

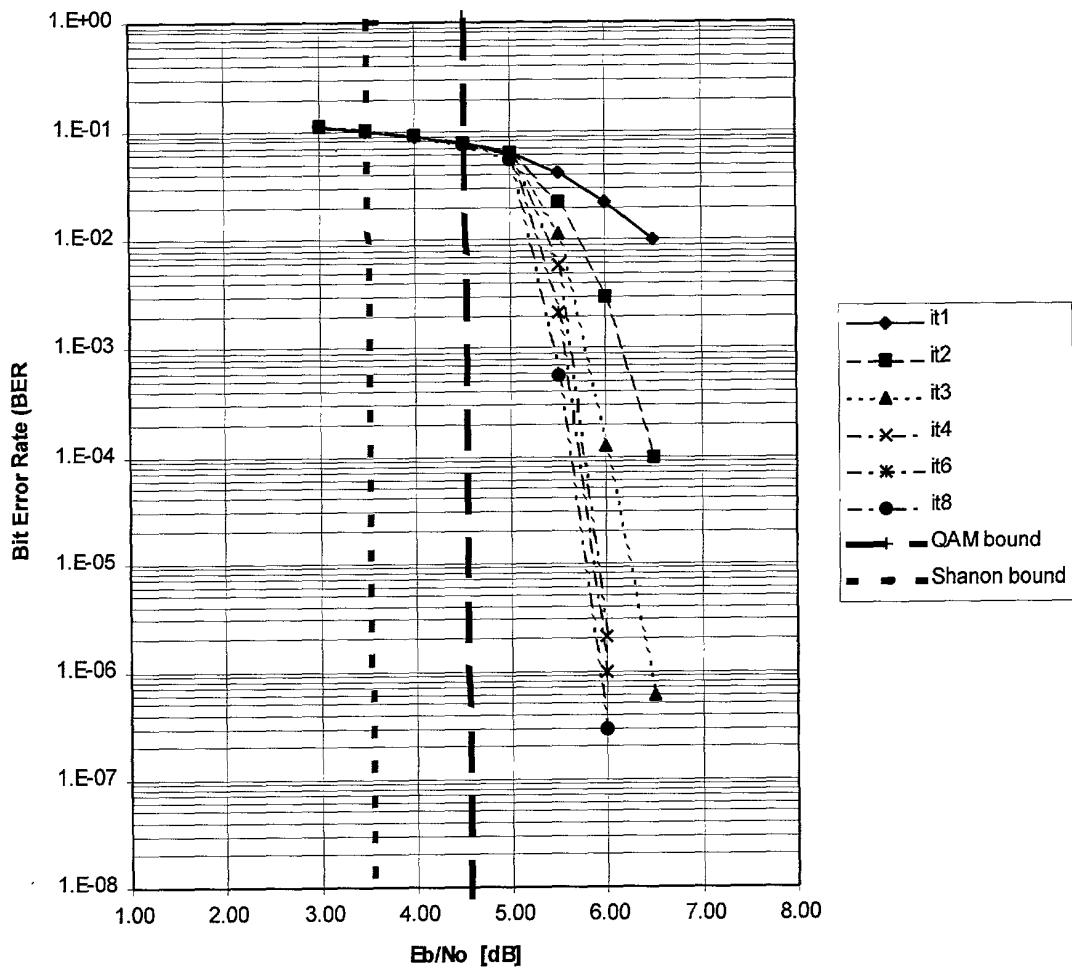


Figure 24

**BER for Rate 4/6 64QAM N=4,096 bits AWGN Channel , Gray Mapping**

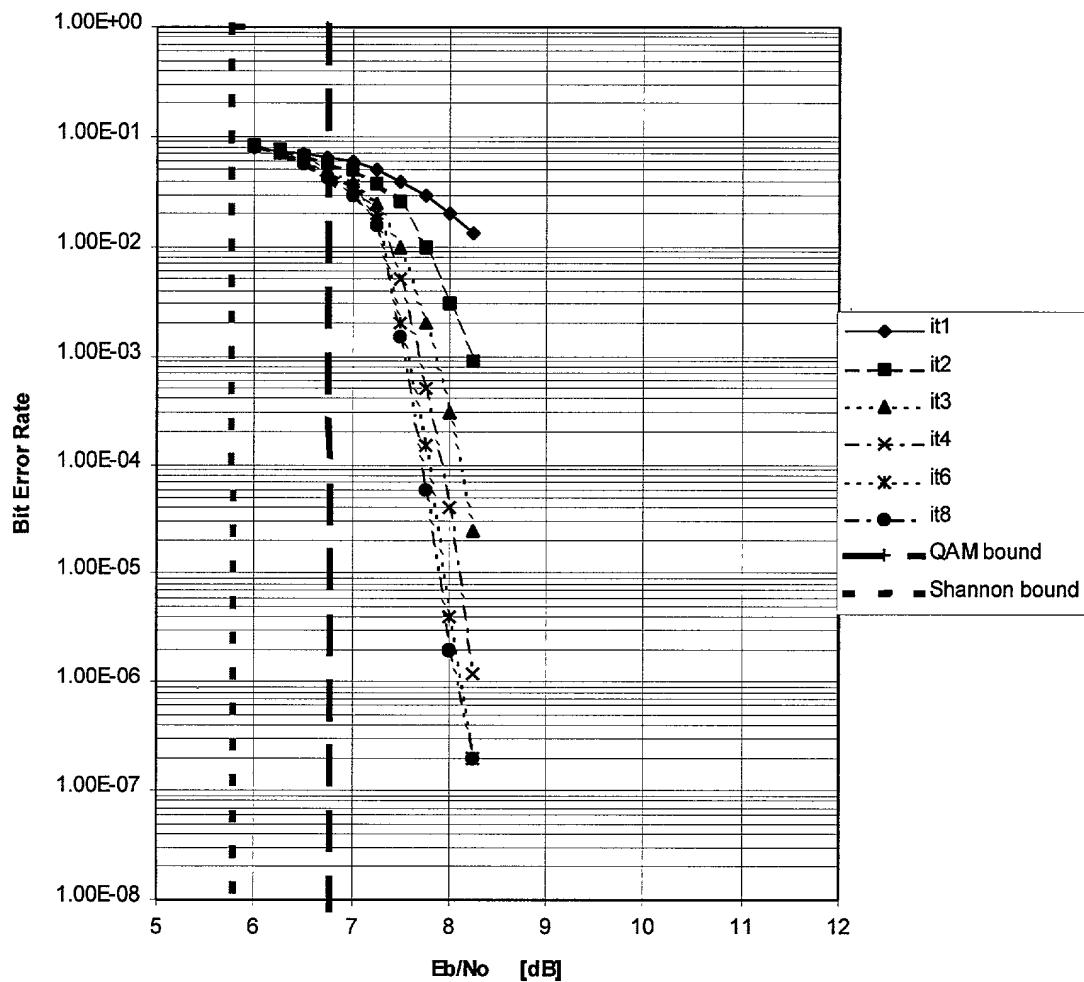


Figure 25

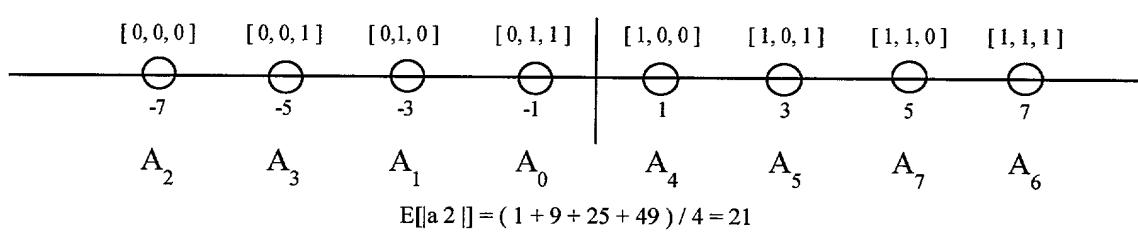


Figure 26

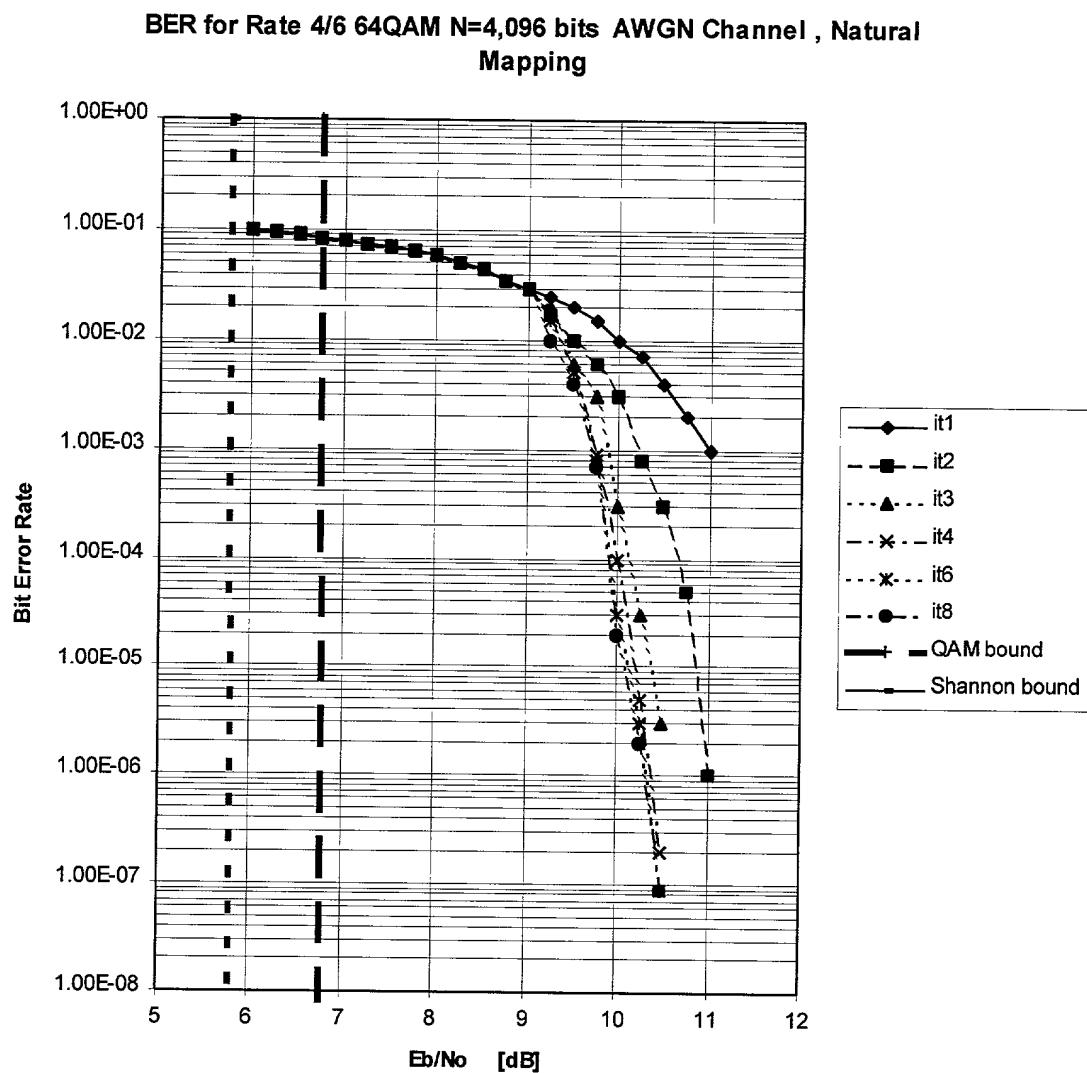


Figure 27

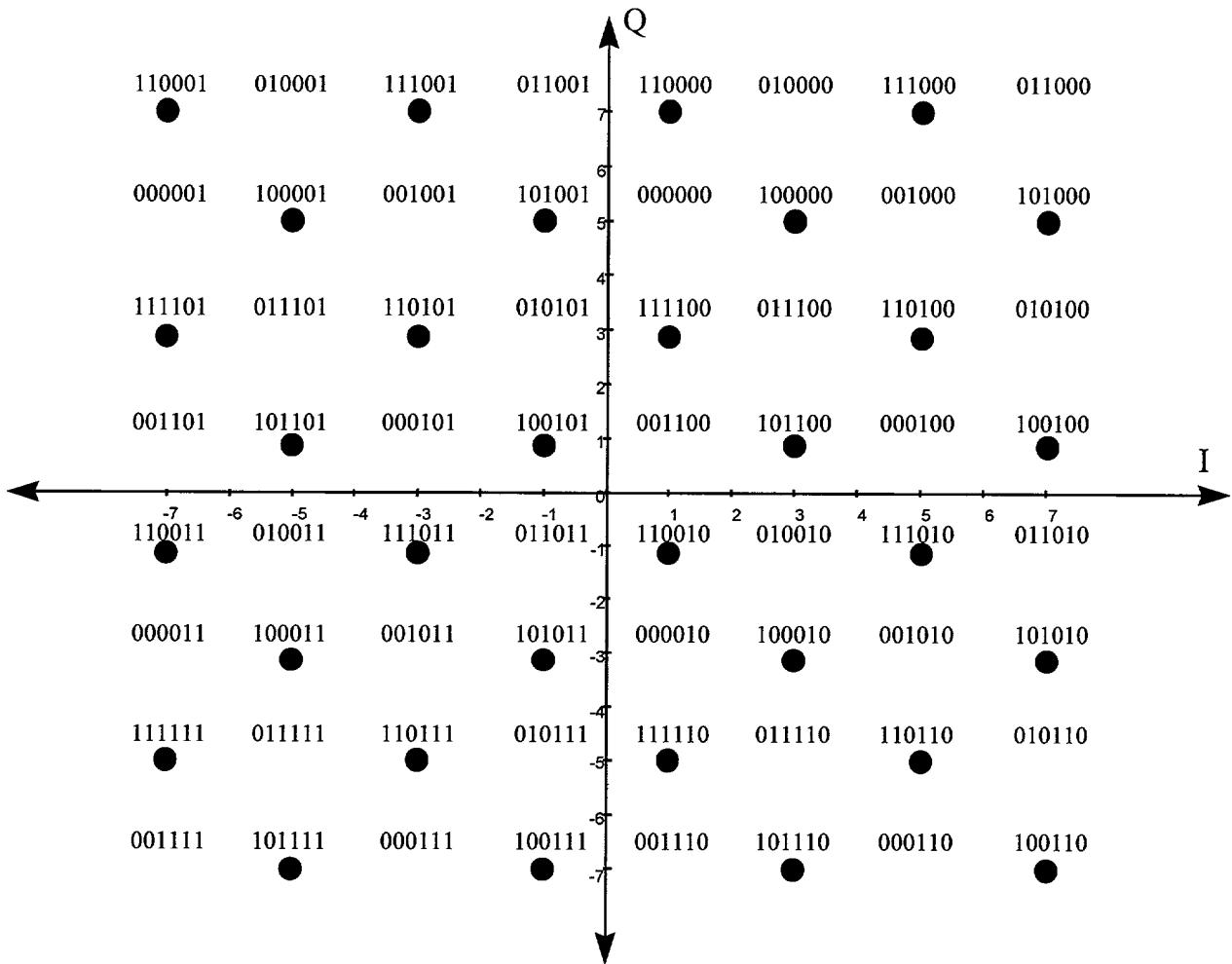


Figure 28

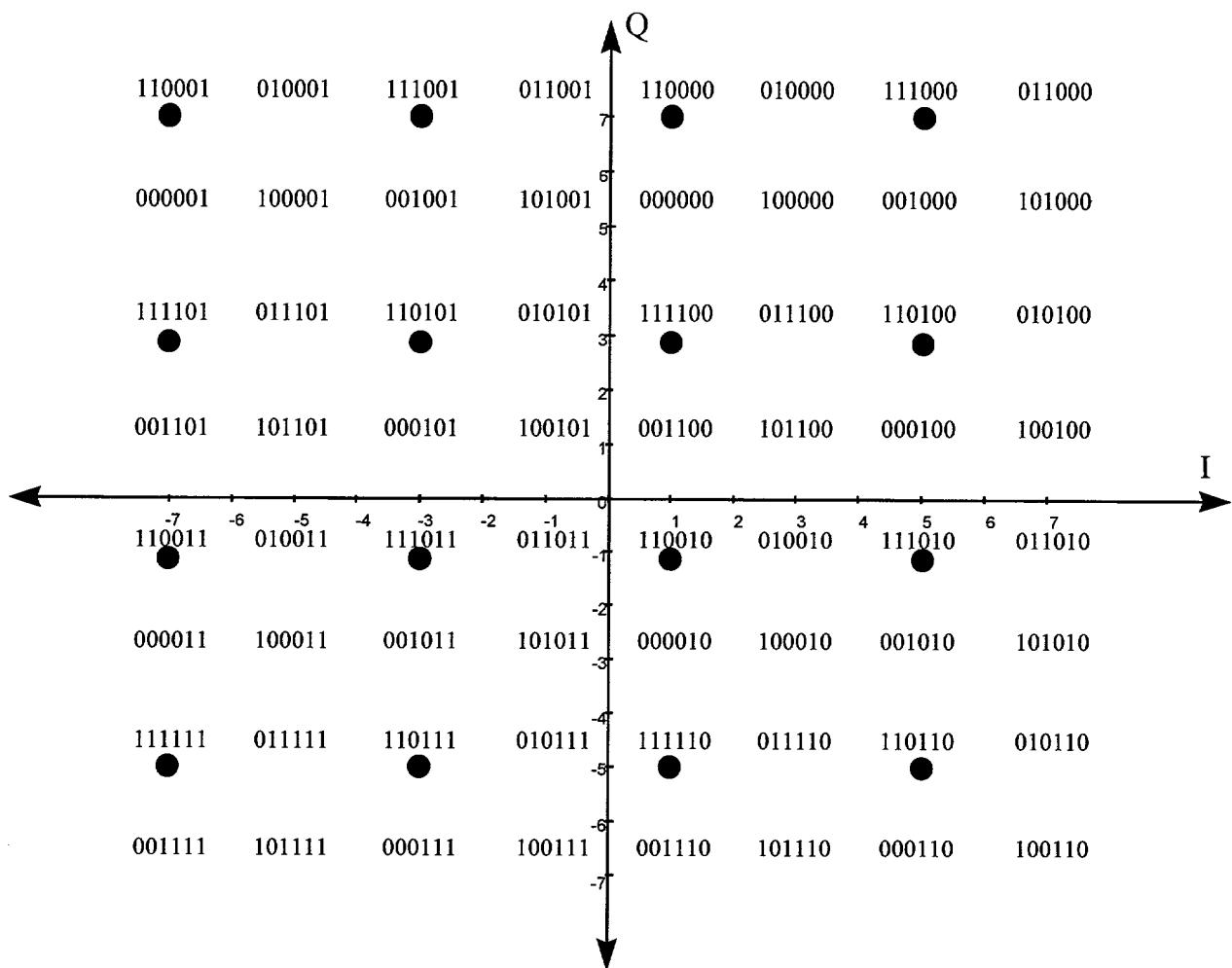


Figure 29

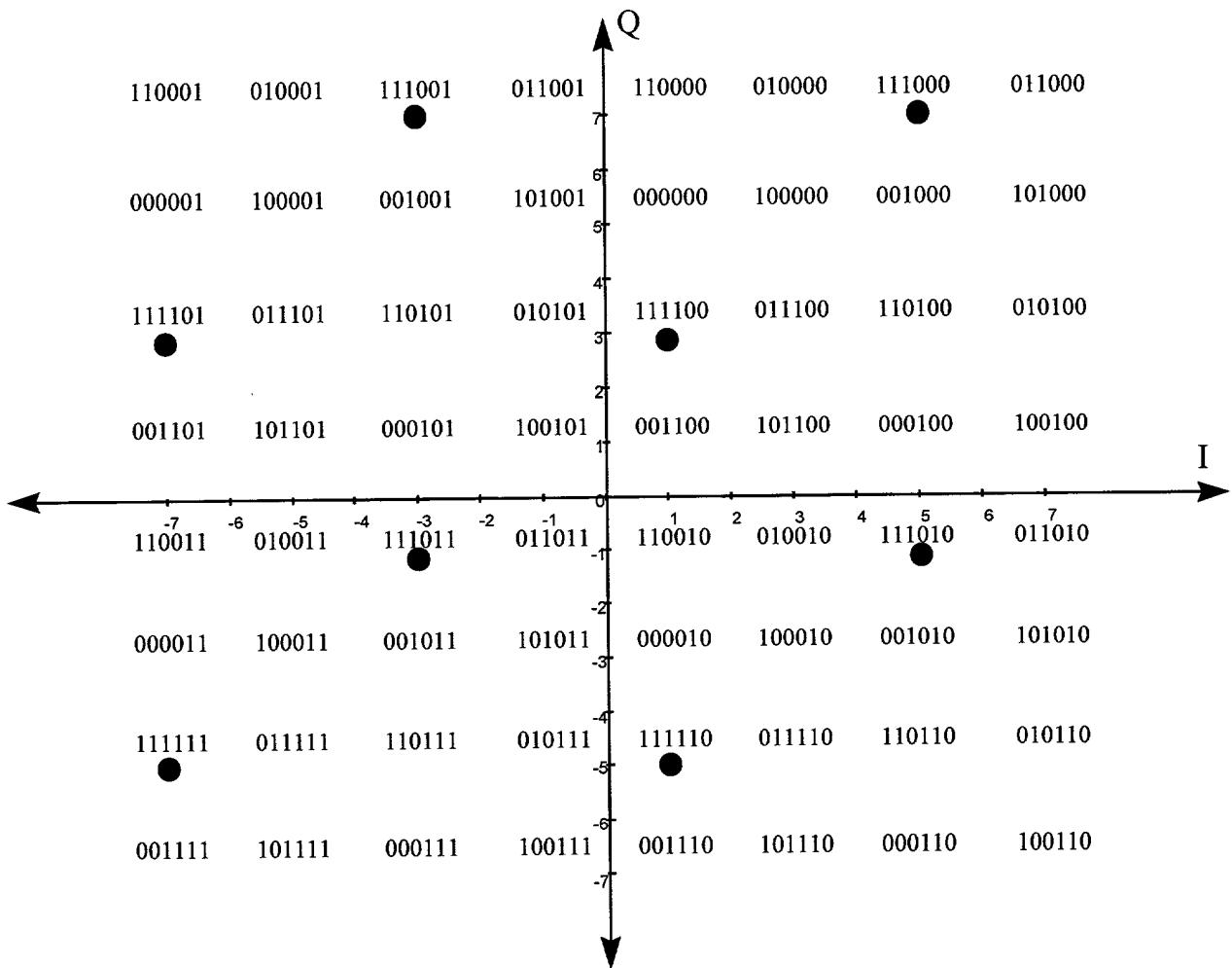


Figure 30

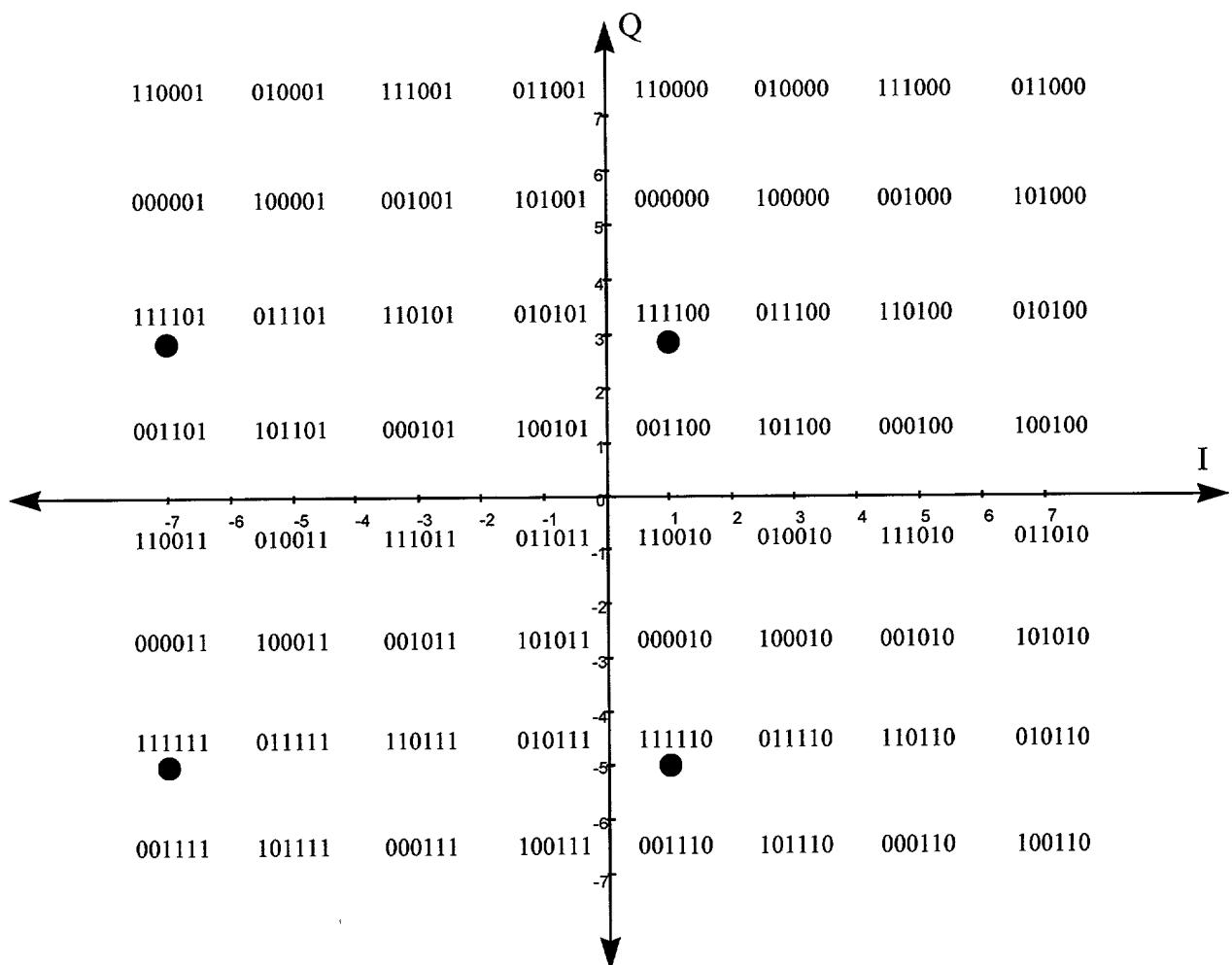


Figure 31

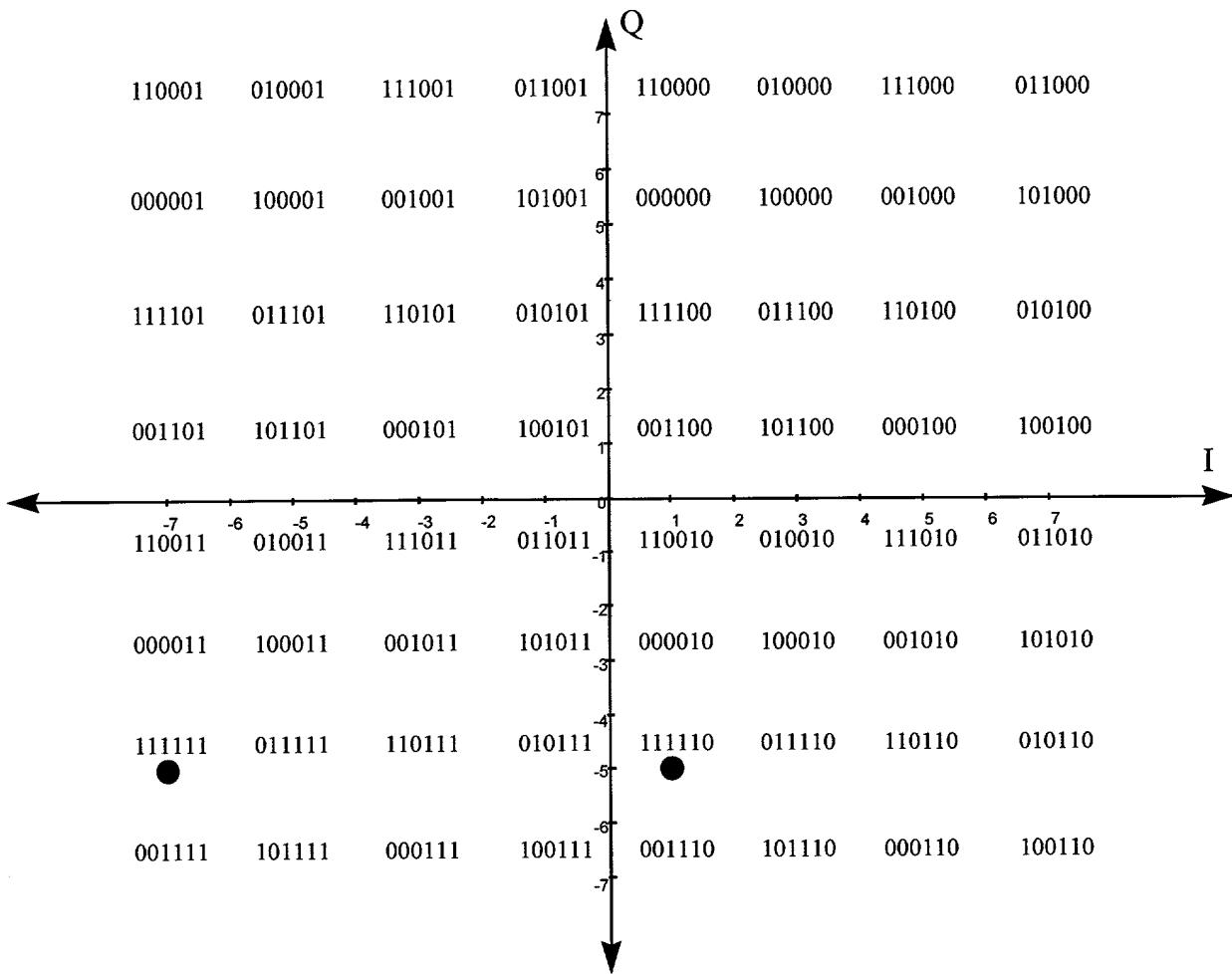


Figure 32

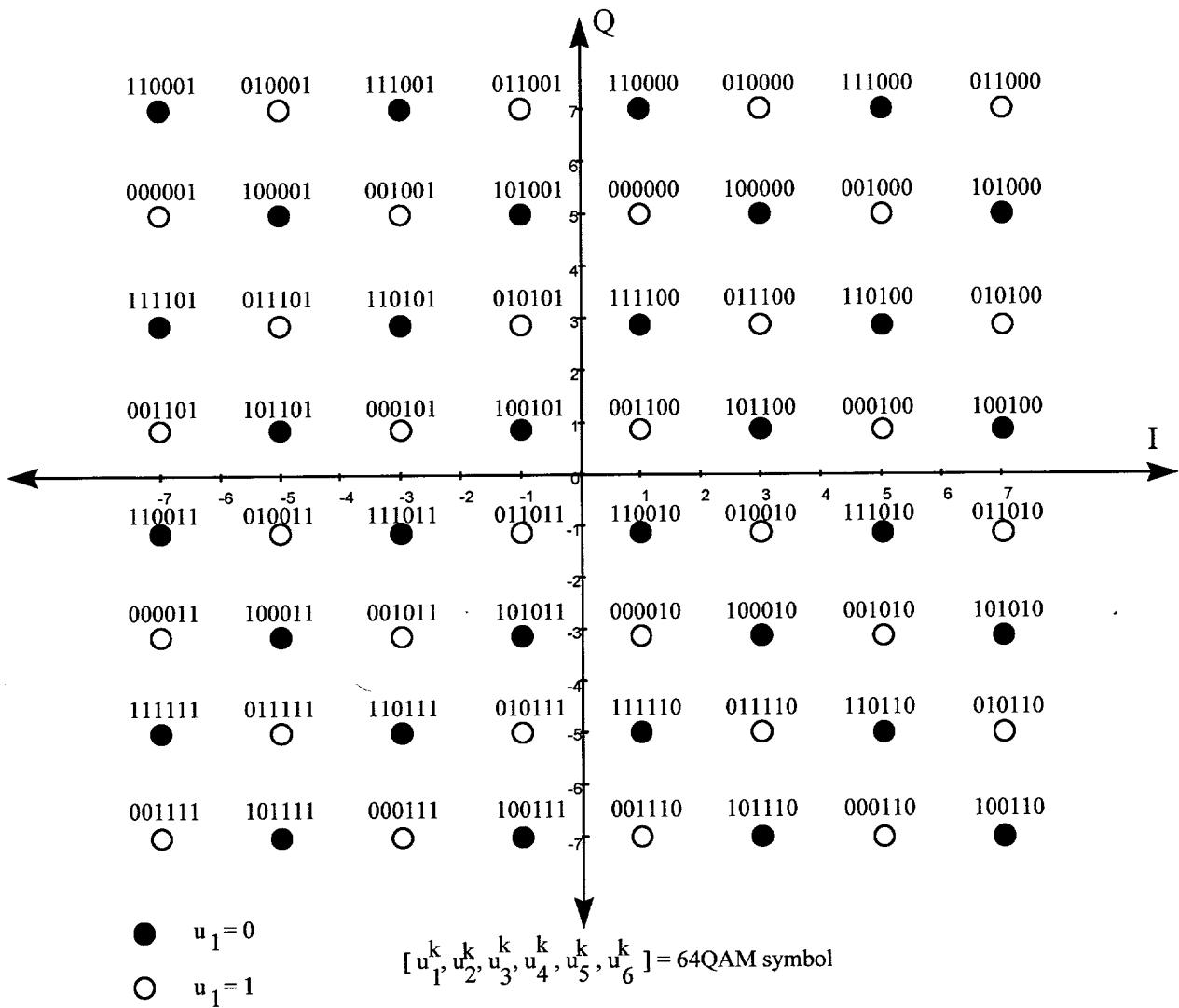


Figure 33

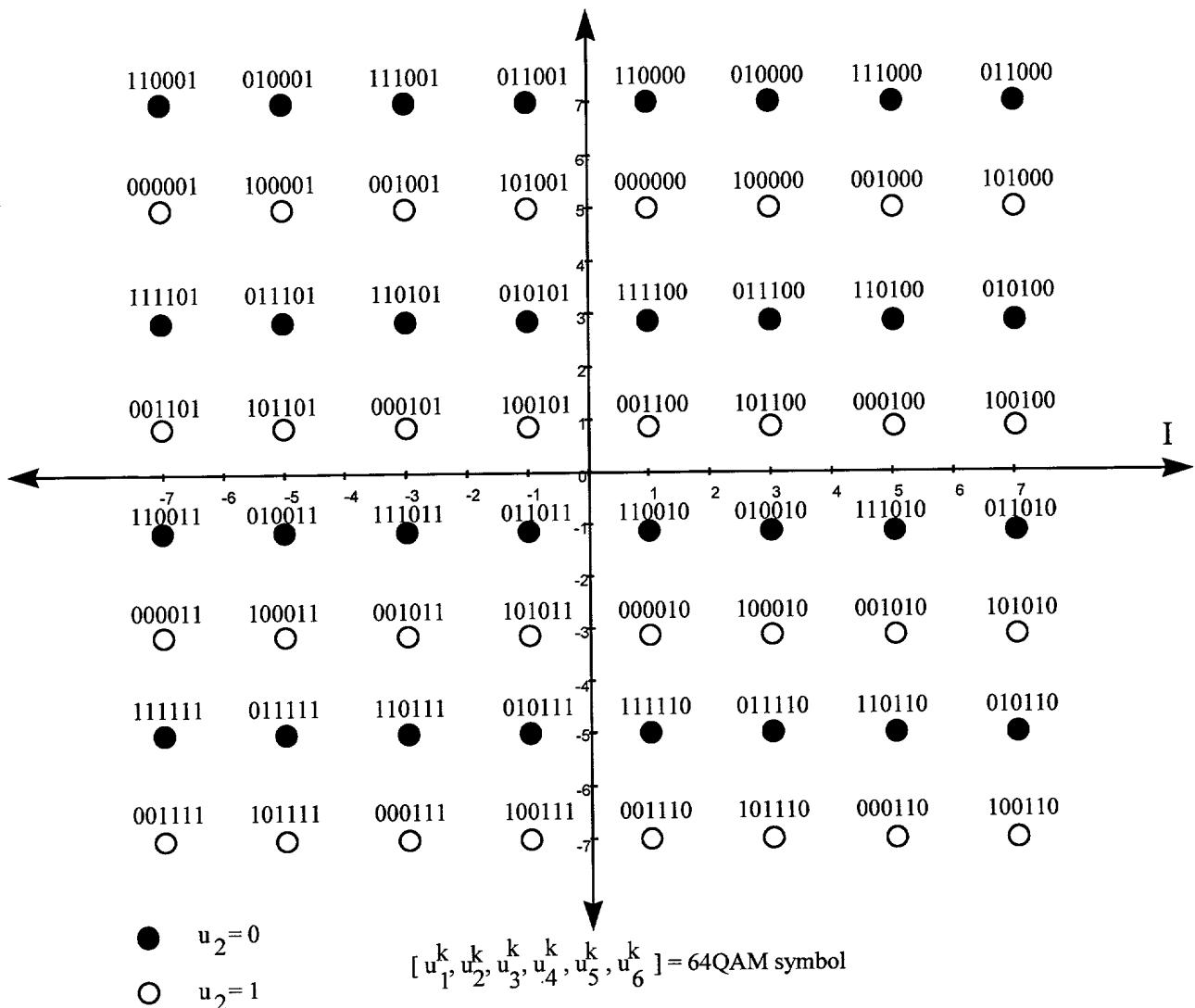


Figure 34

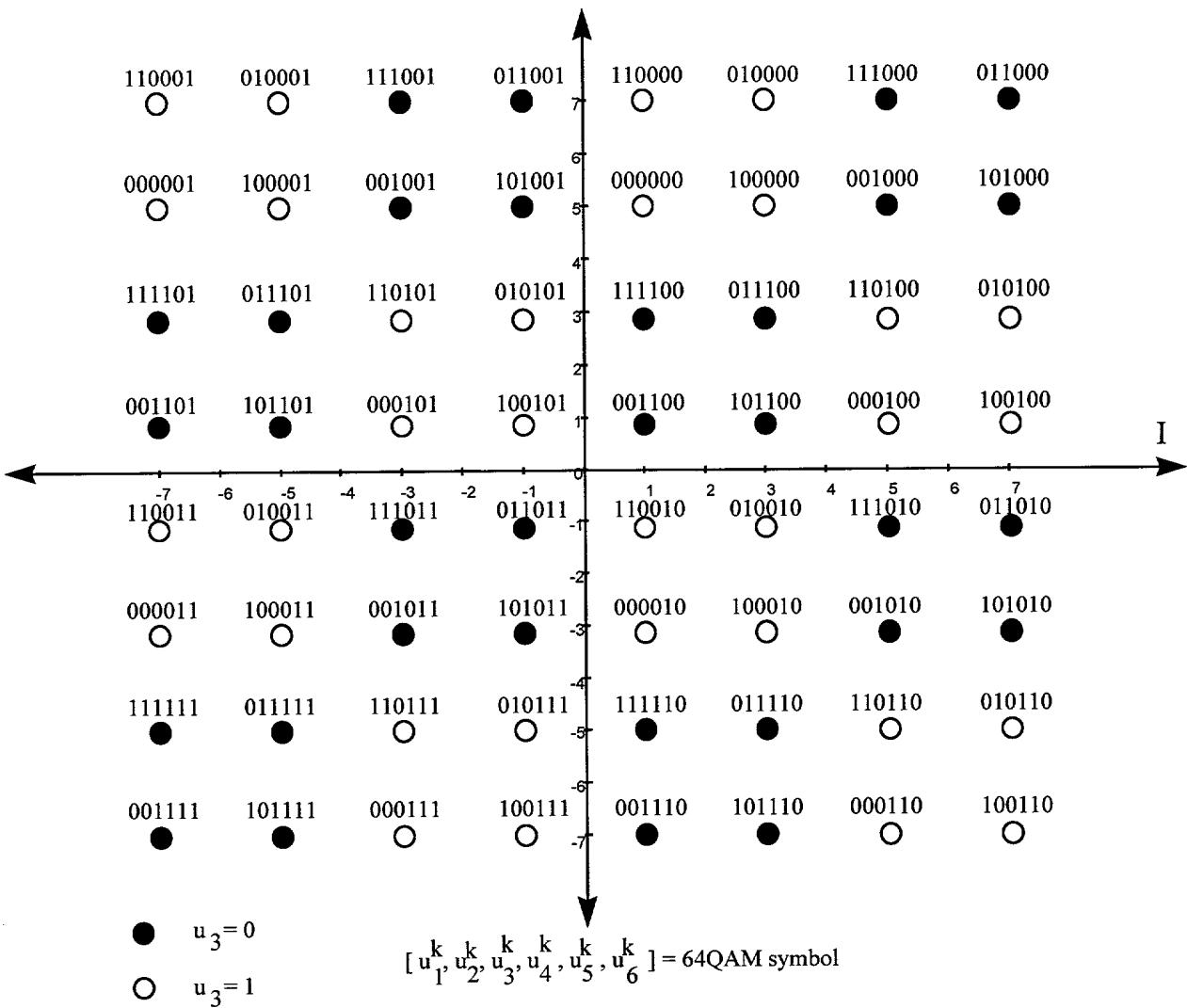


Figure 35

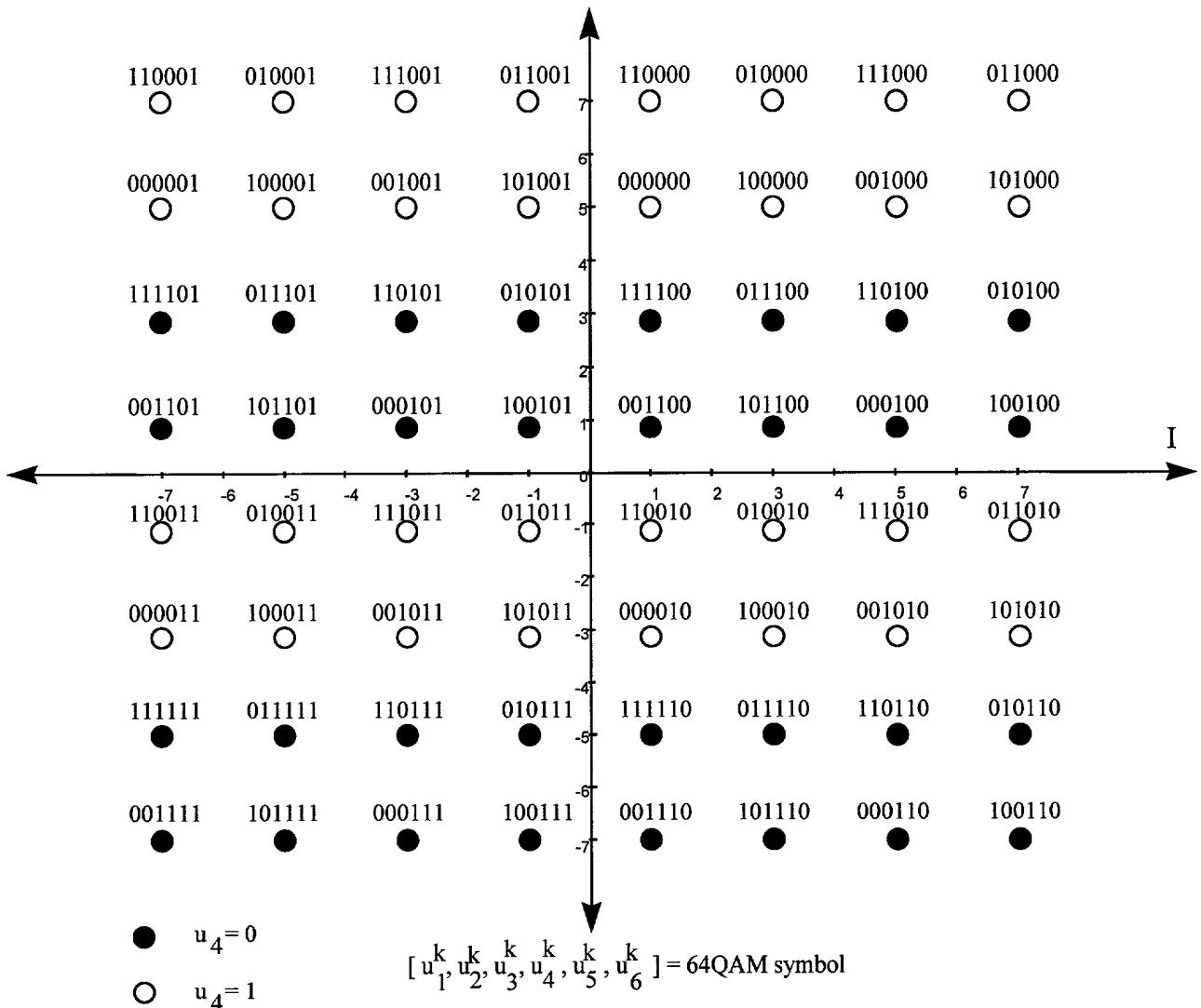


Figure 36

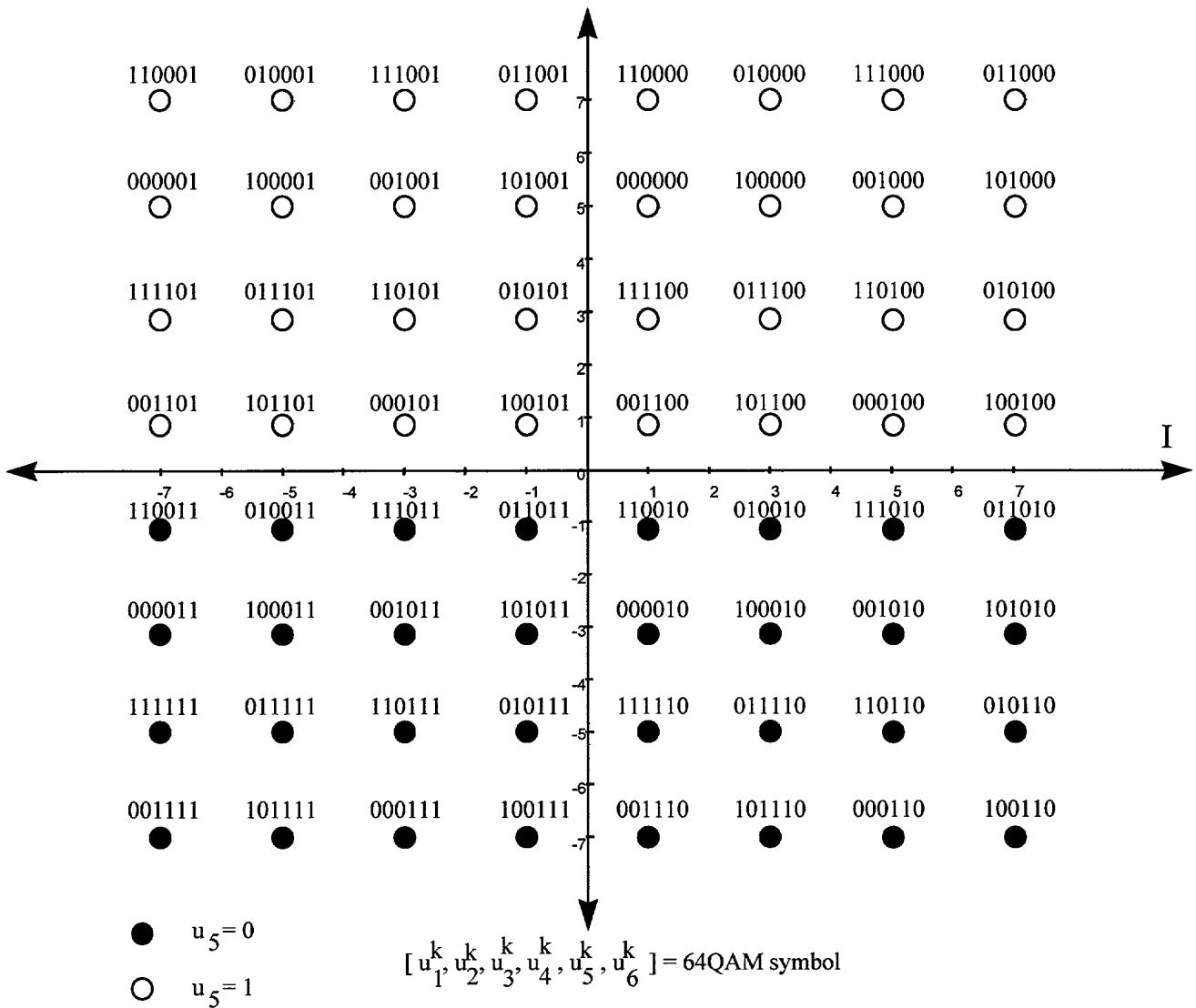


Figure 37

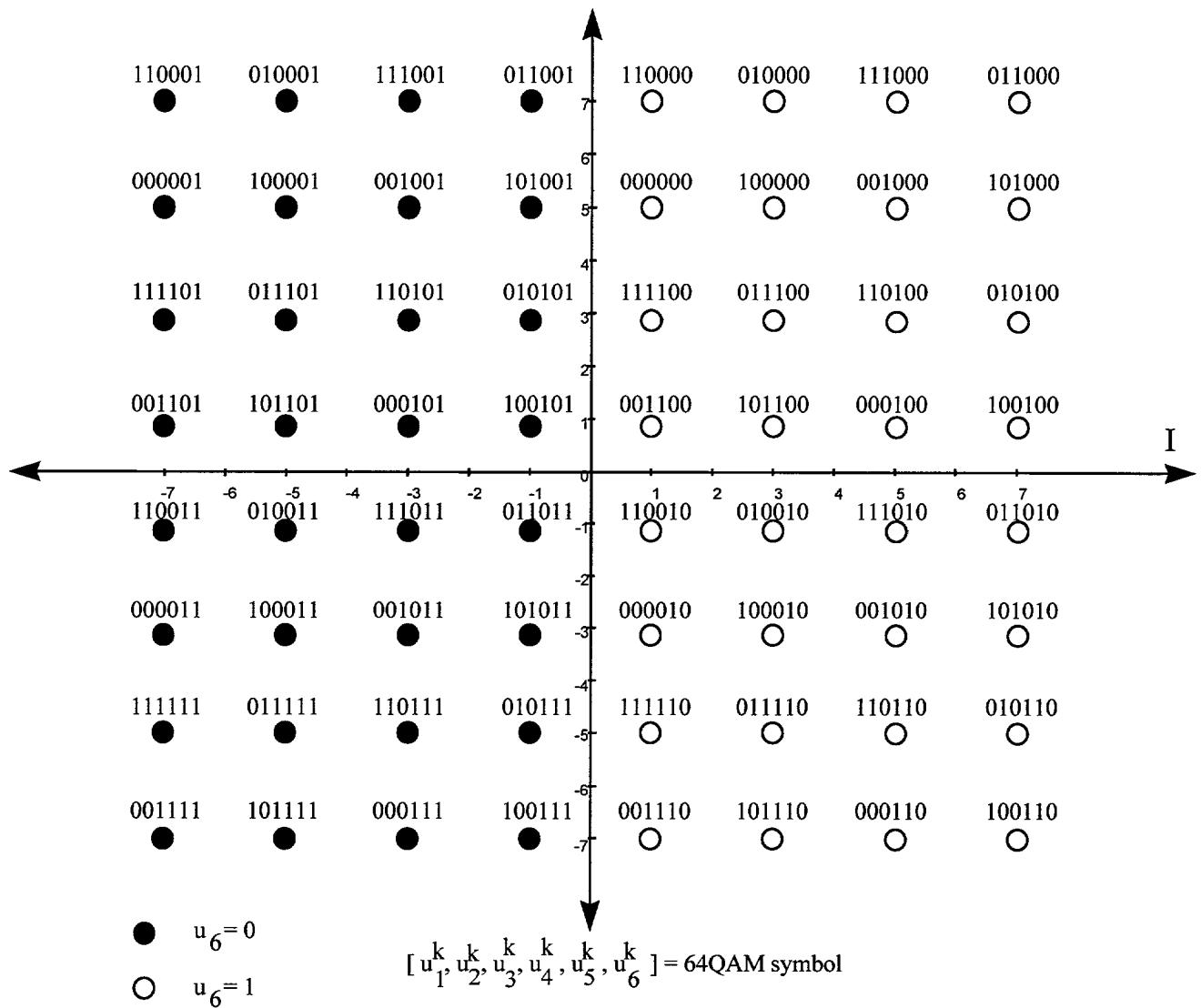


Figure 38

BER for Rate 4/6 64QAM N=4,096 bits AWGN Channel

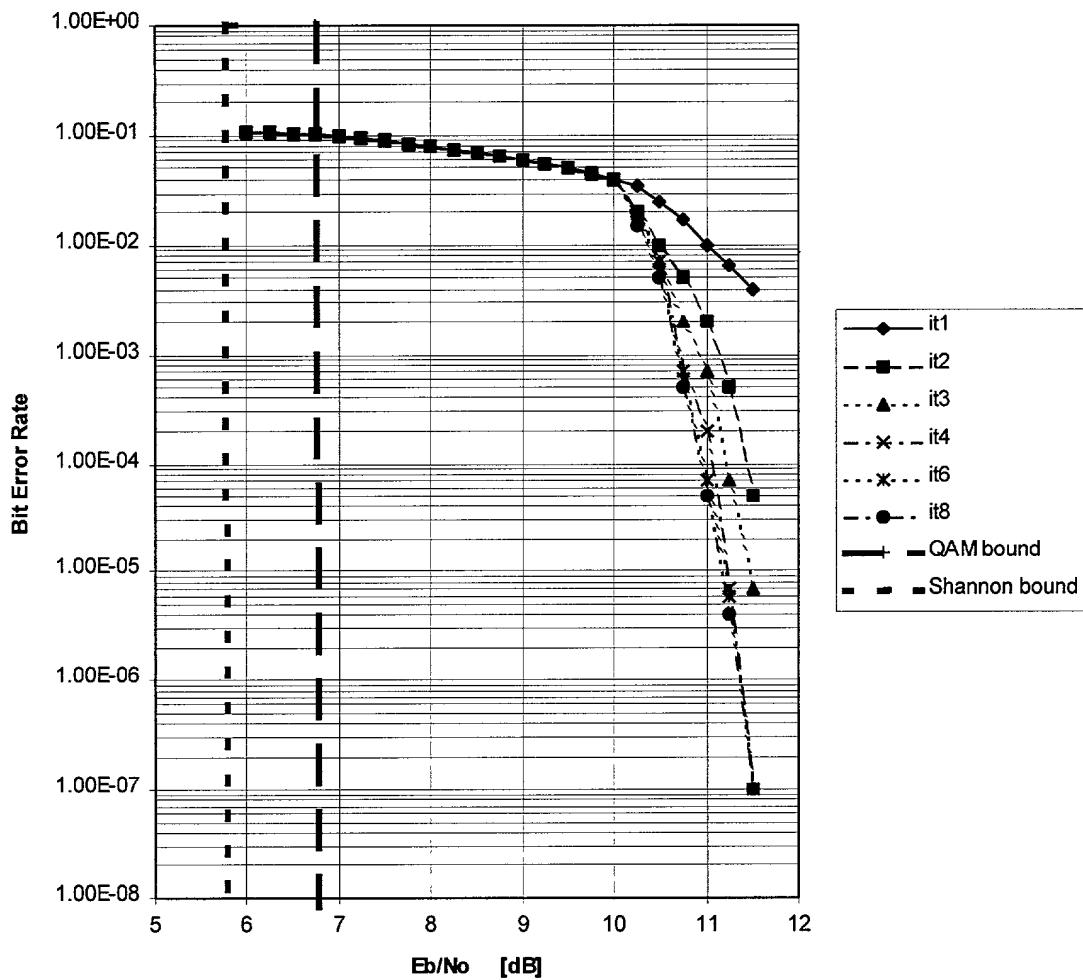
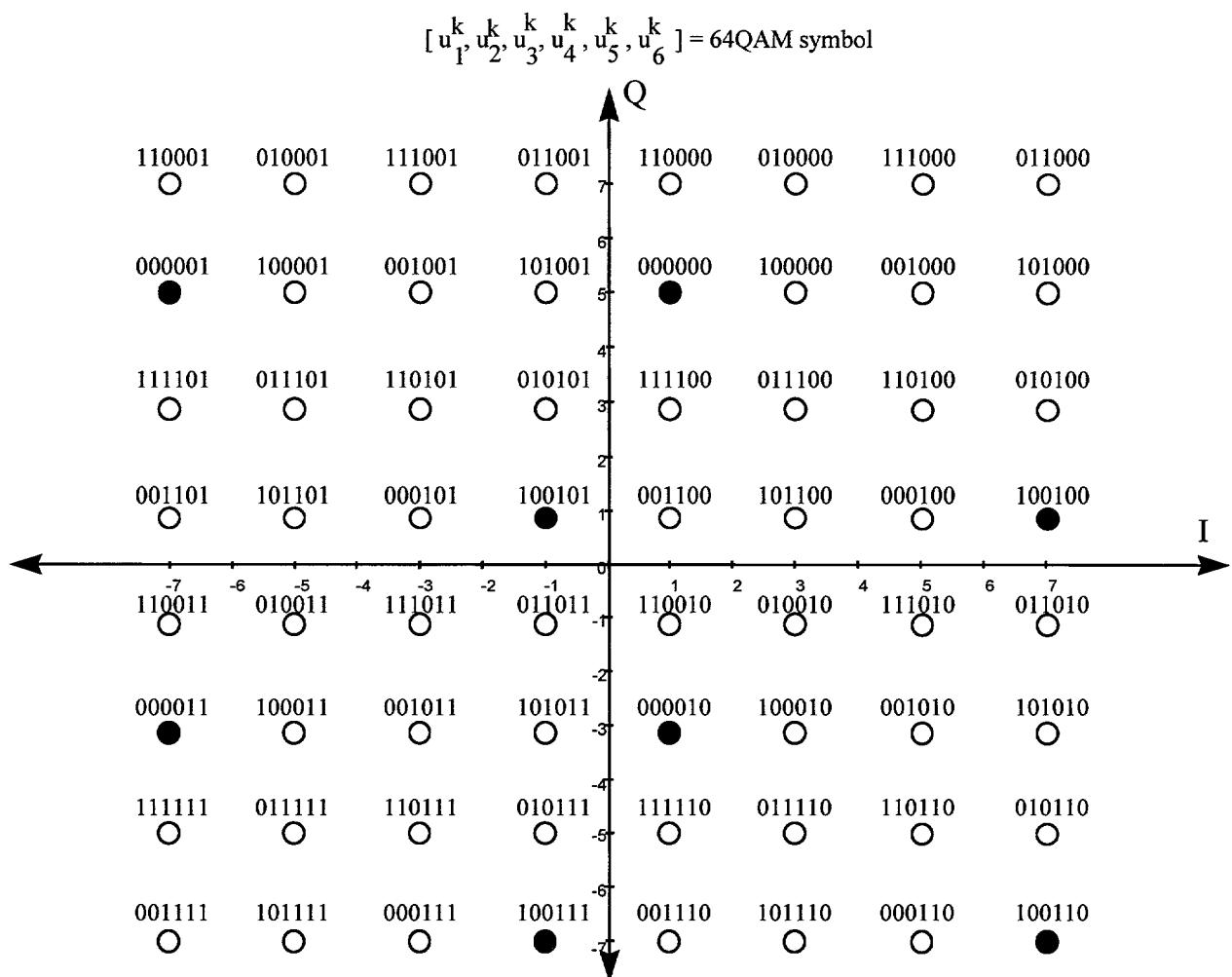


Figure 39



- This 4 point constellation is selected by the four coded bits 0000
- Each of the four points of the 1001 constellation is selected by two uncoded bits using Gray mapping

Figure 40

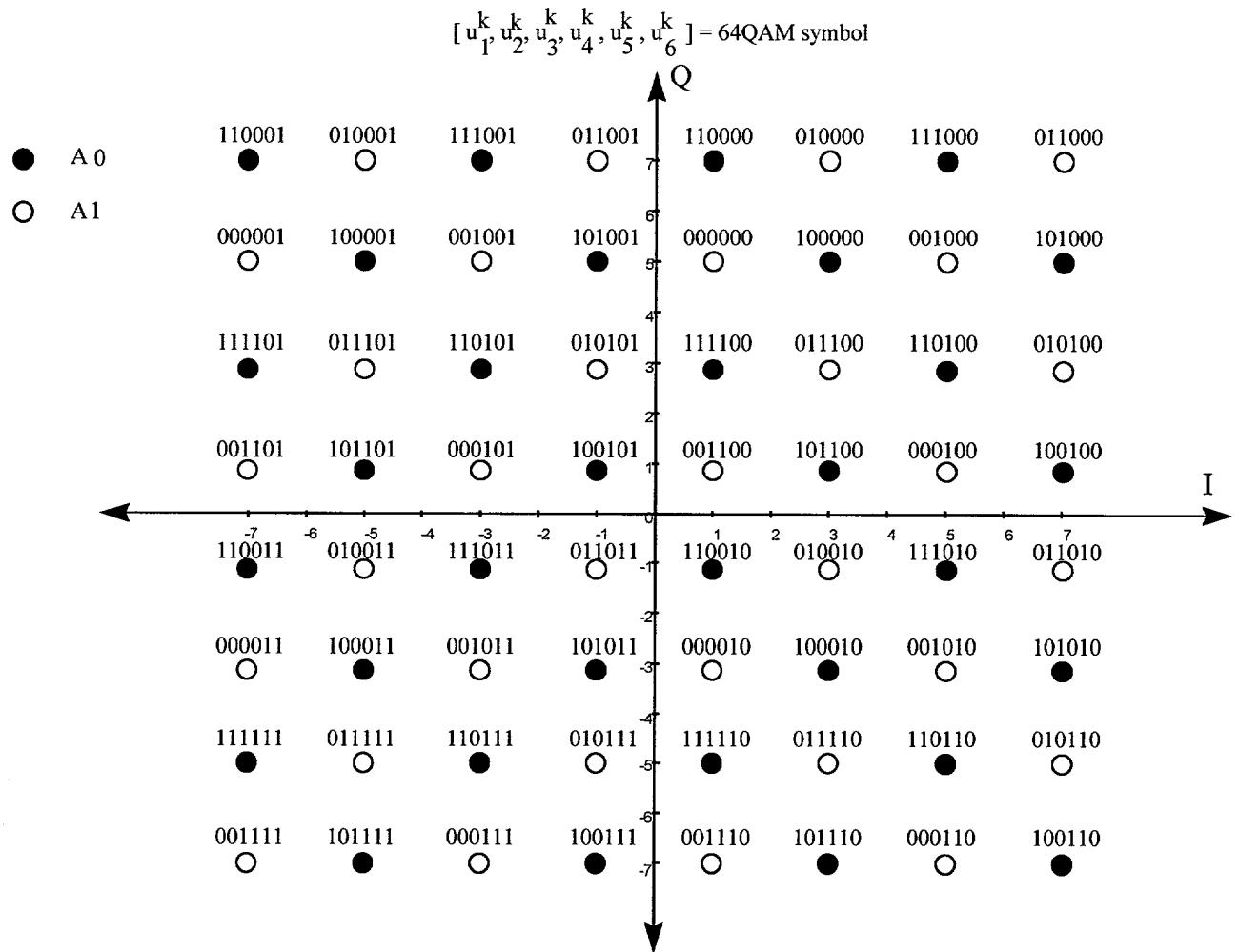


Figure 41

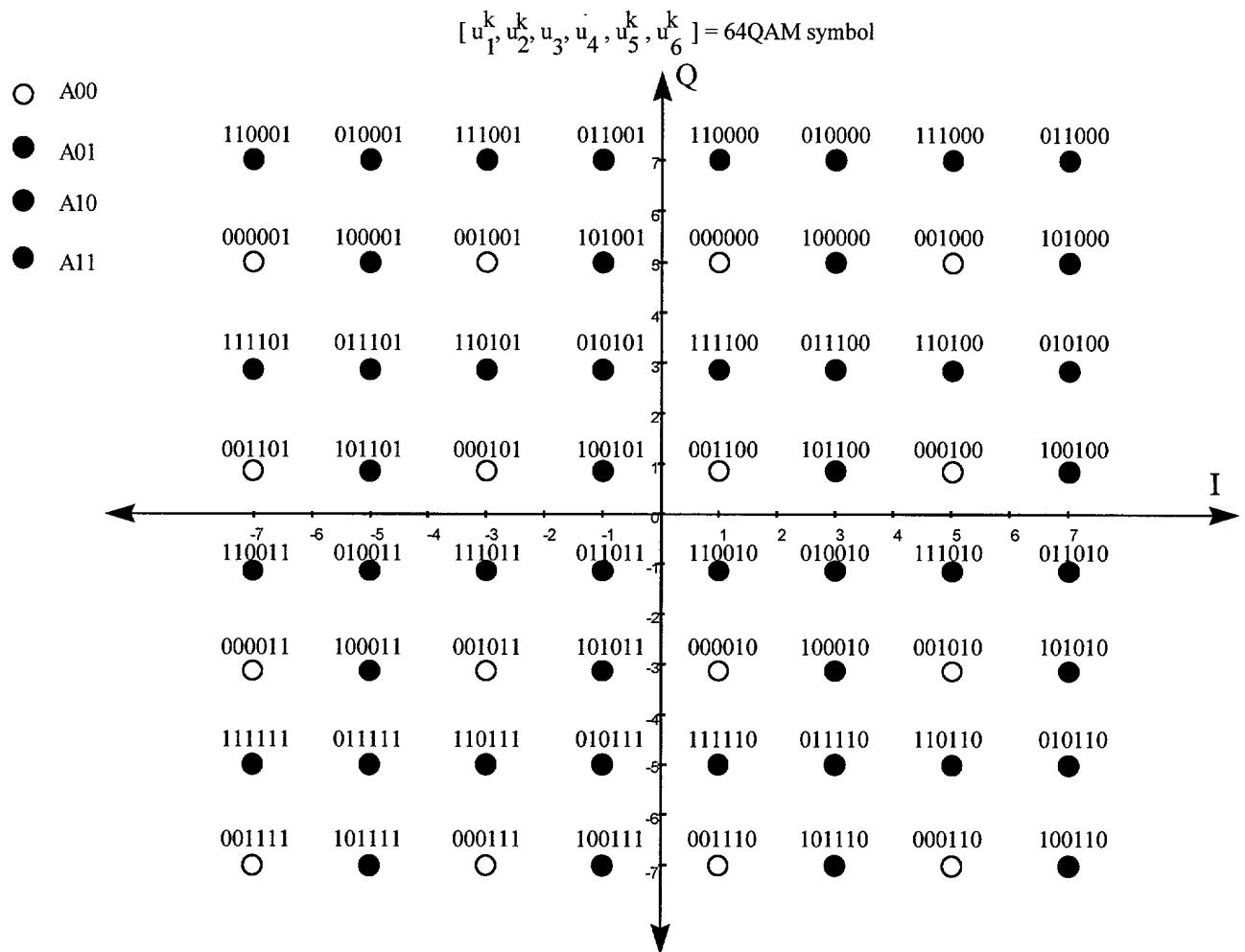


Figure 42

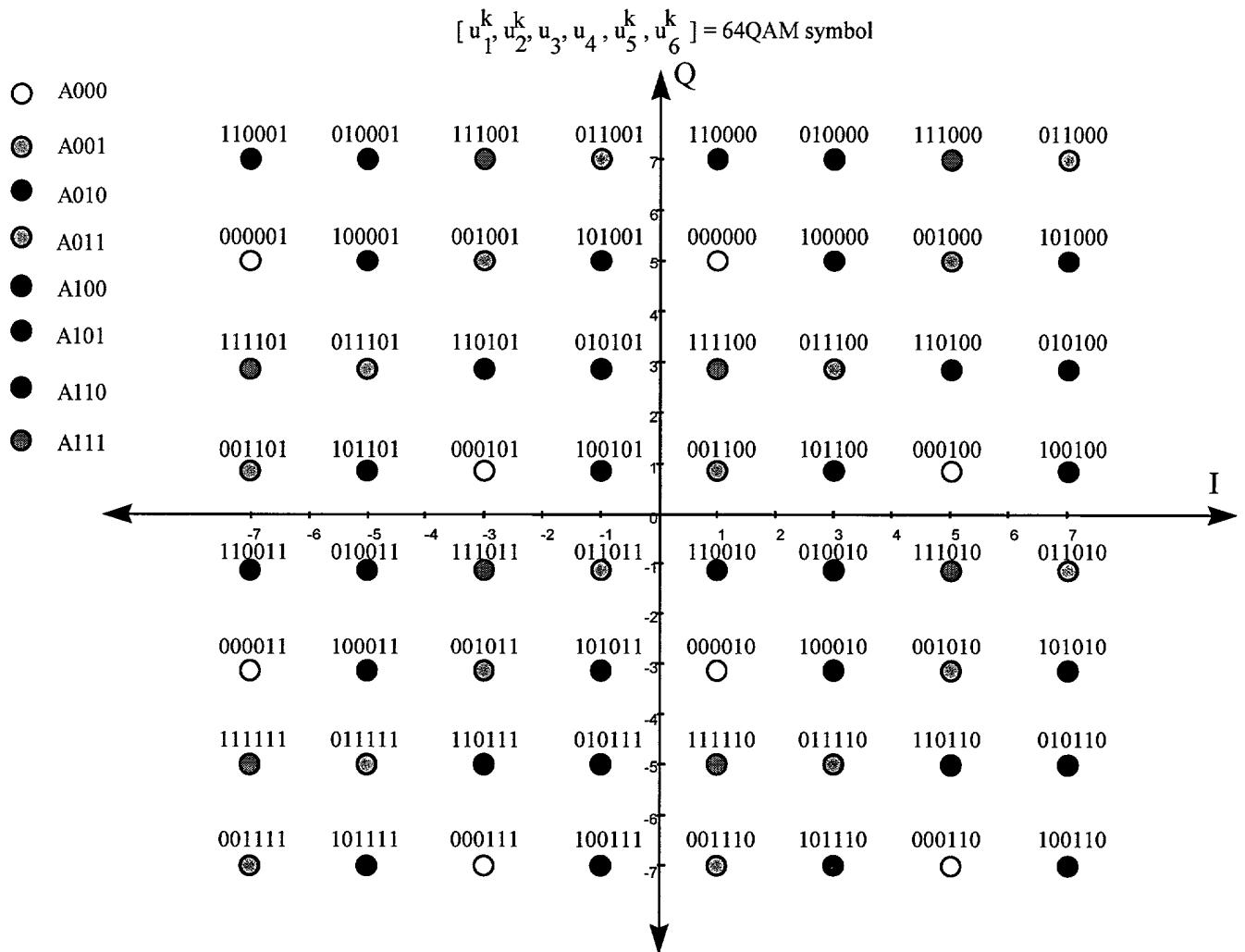


Figure 43

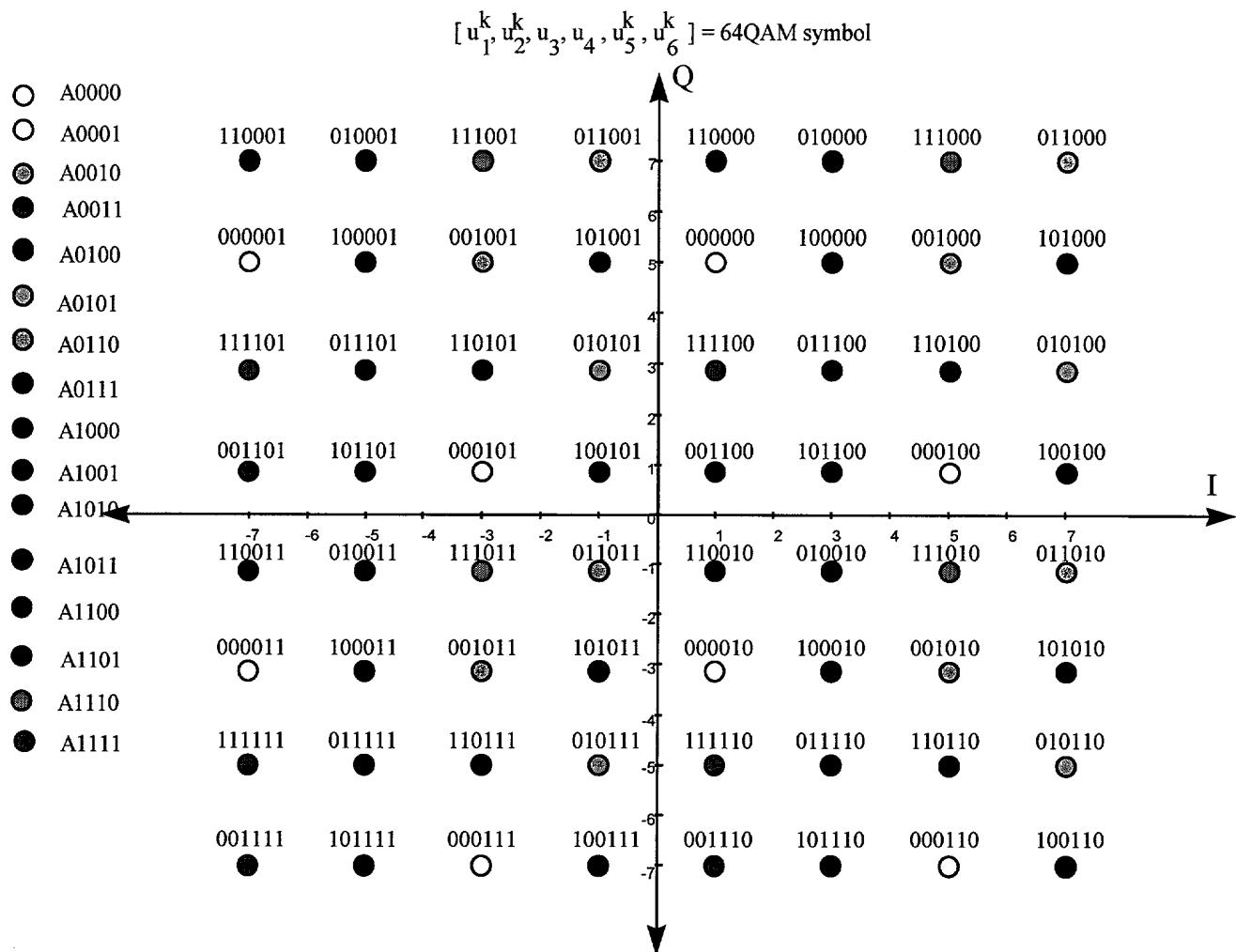


Figure 44

BER for Rate 4/6 64QAM N=4,096 bits AWGN Channel

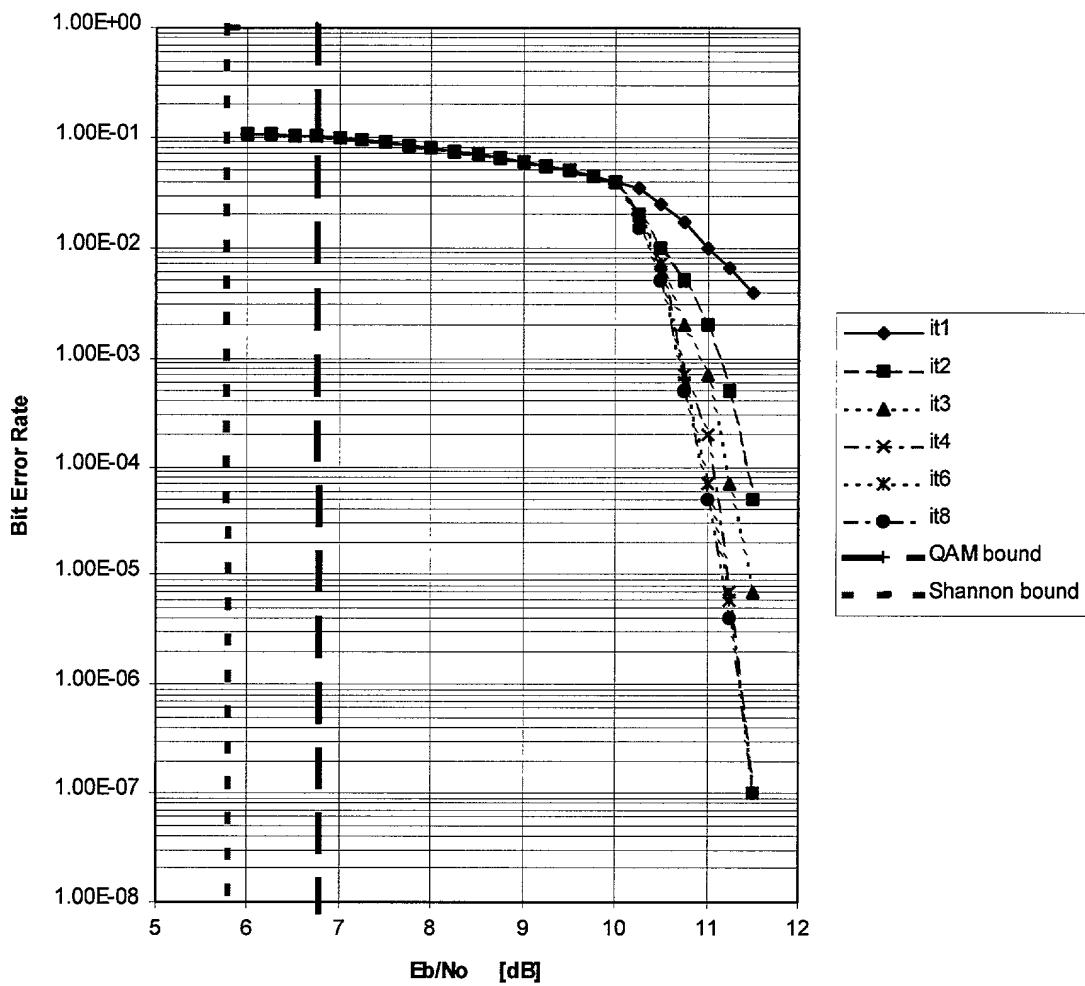


Figure 45

**BER for Rate 5/6 64QAM N=5,120 bits AWGN Channel**

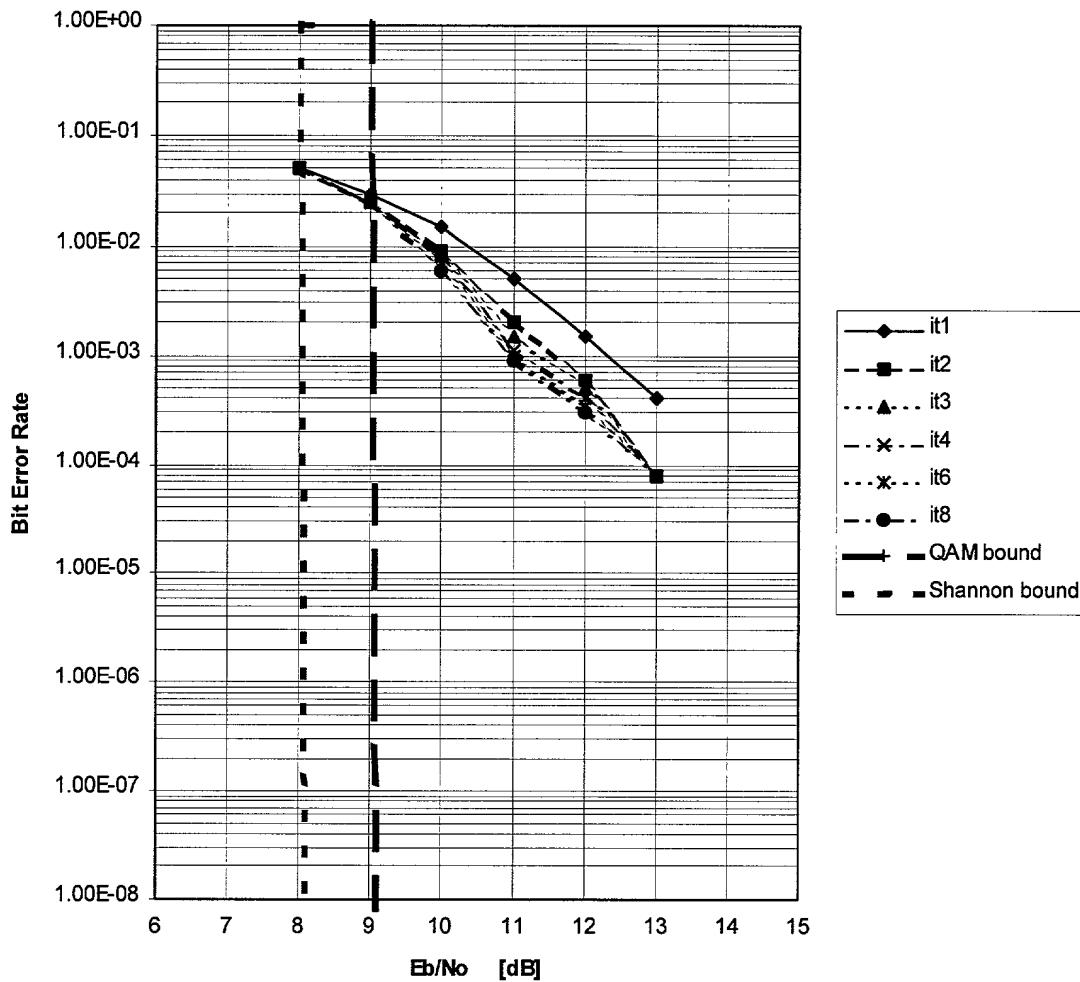


Figure 46

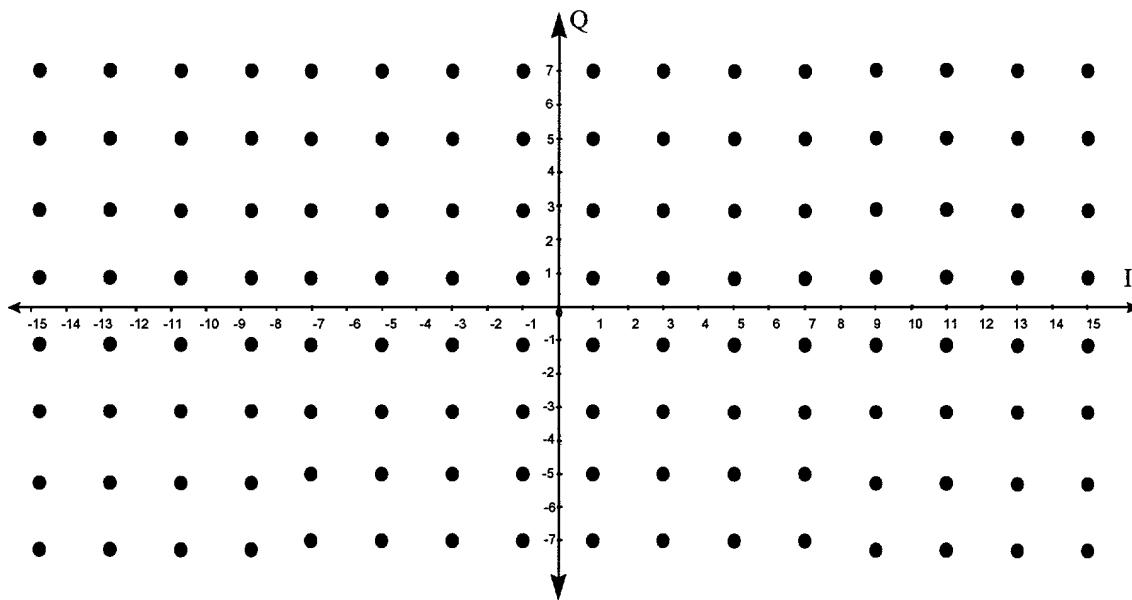


Figure 47

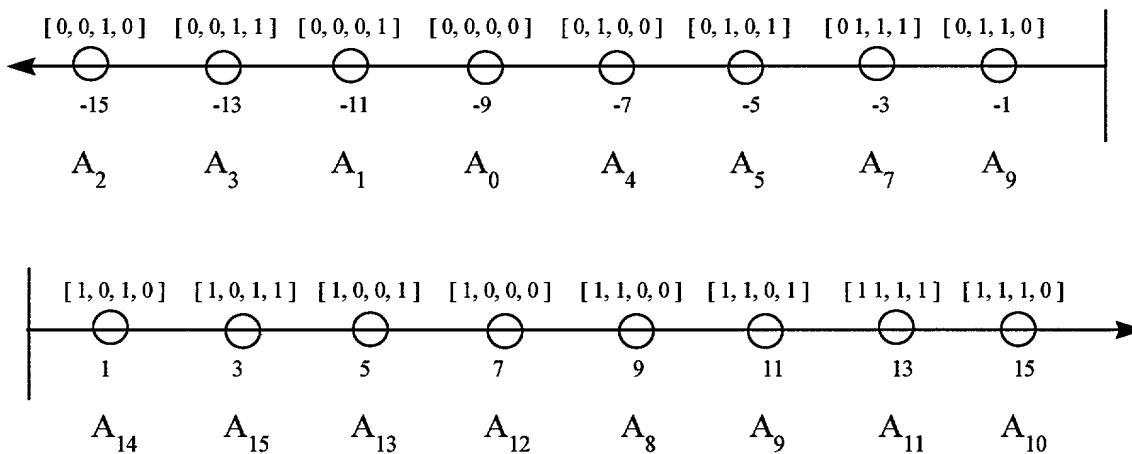


Figure 48

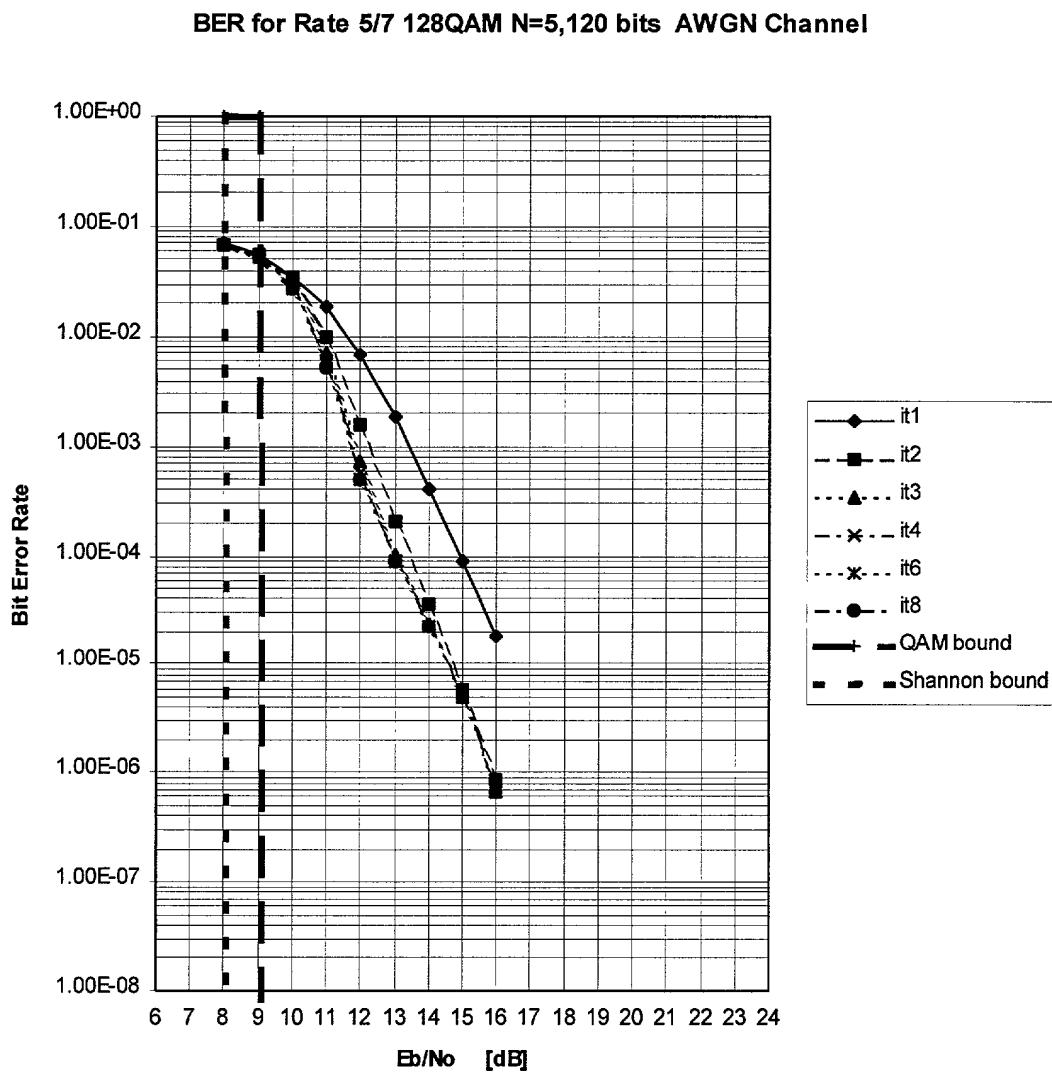


Figure 49

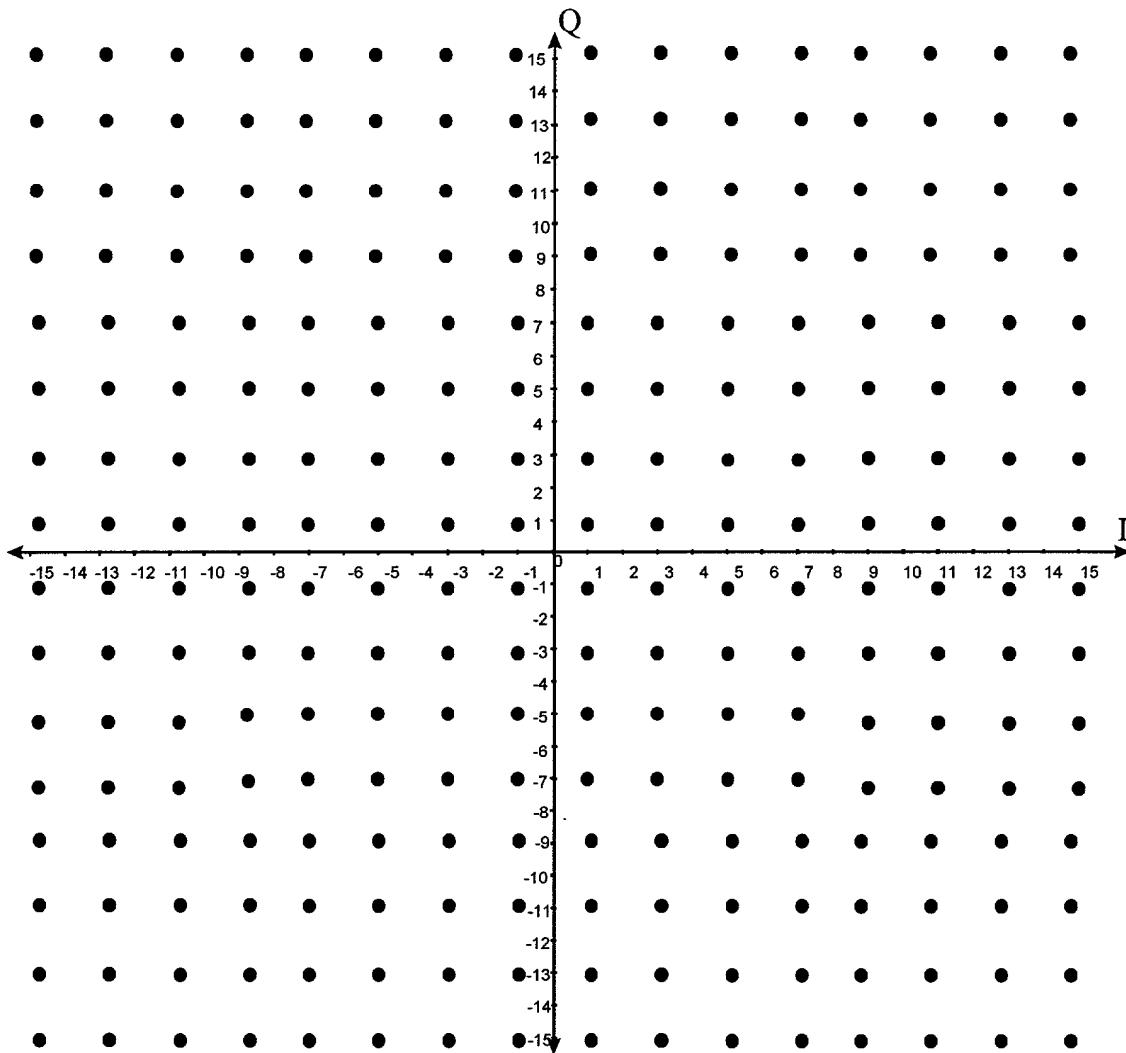


Figure 50

**BER for Rate 5/8 256QAM N=5,120 bits AWGN Channel**

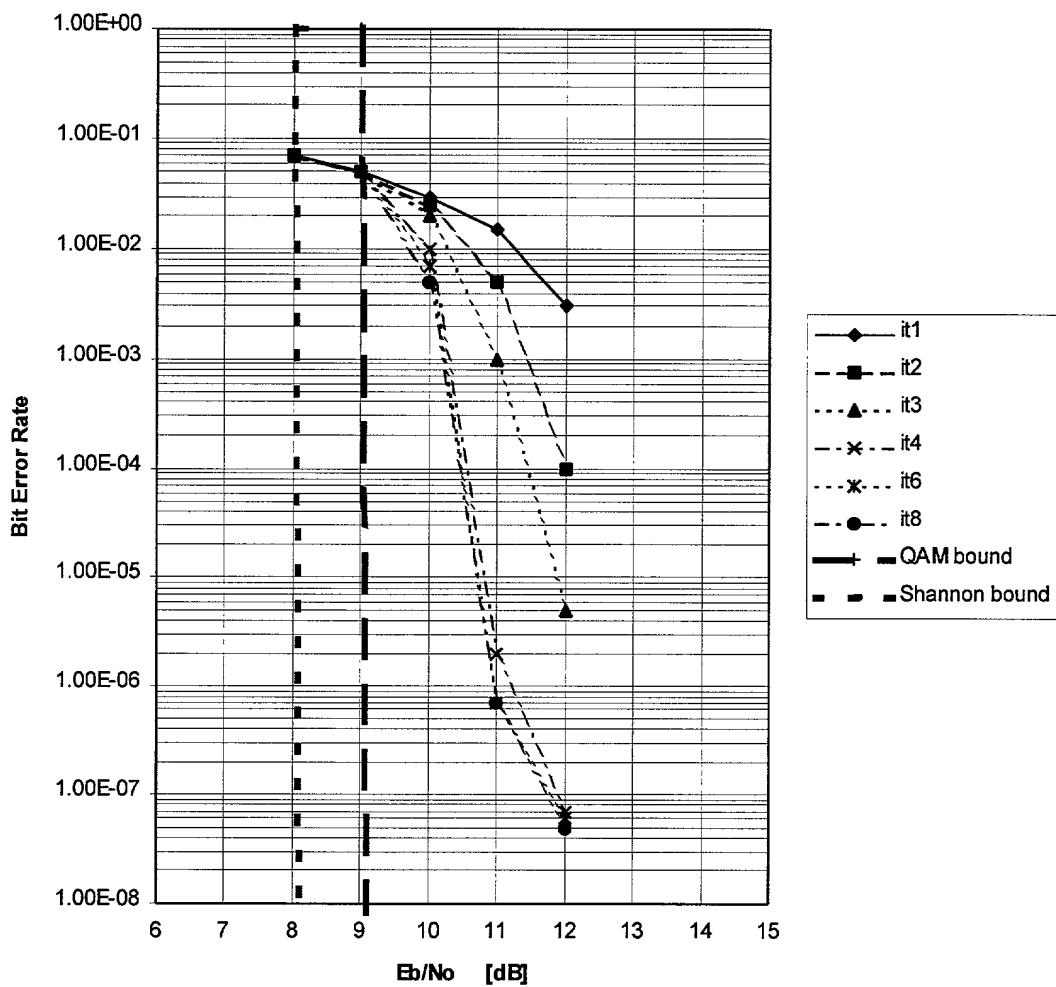


Figure 51

BER for Rate 6/8 256QAM N=6,144 bits AWGN Channel

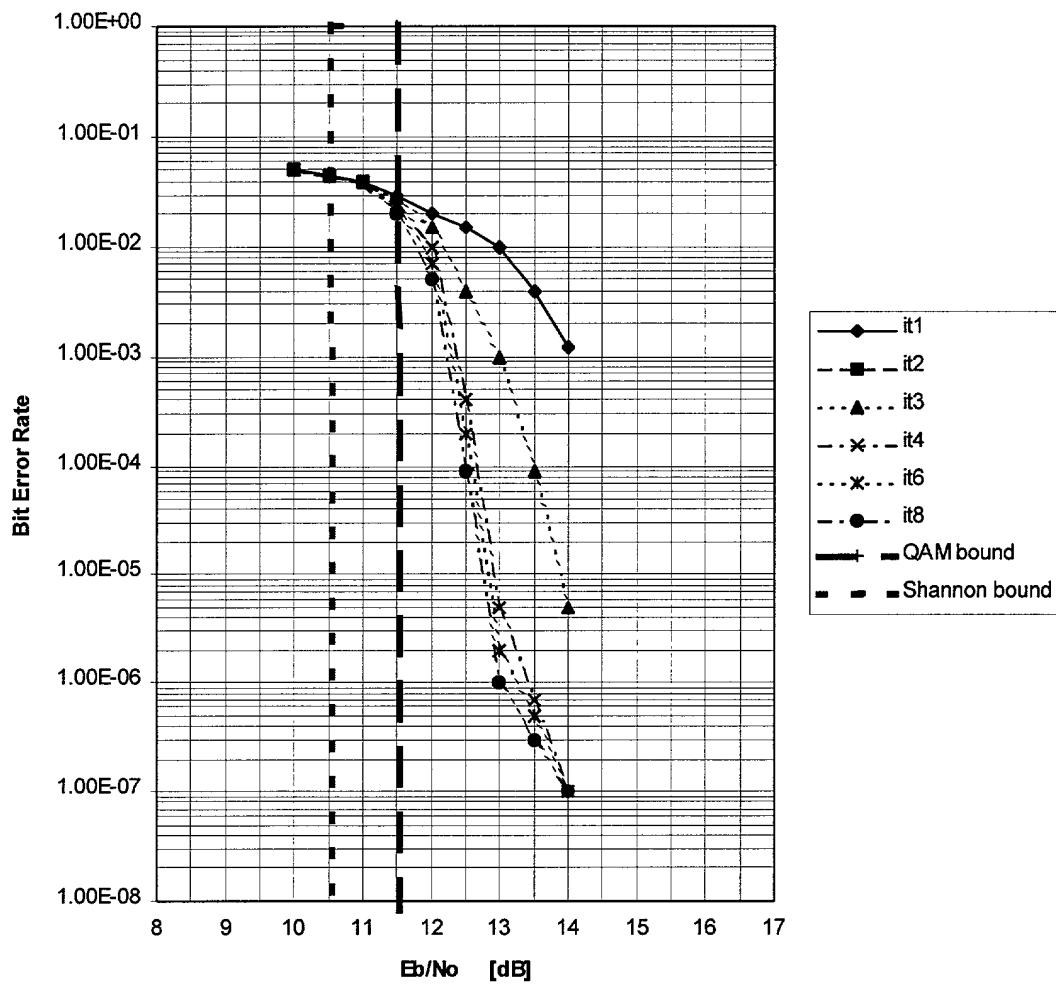


Figure 52

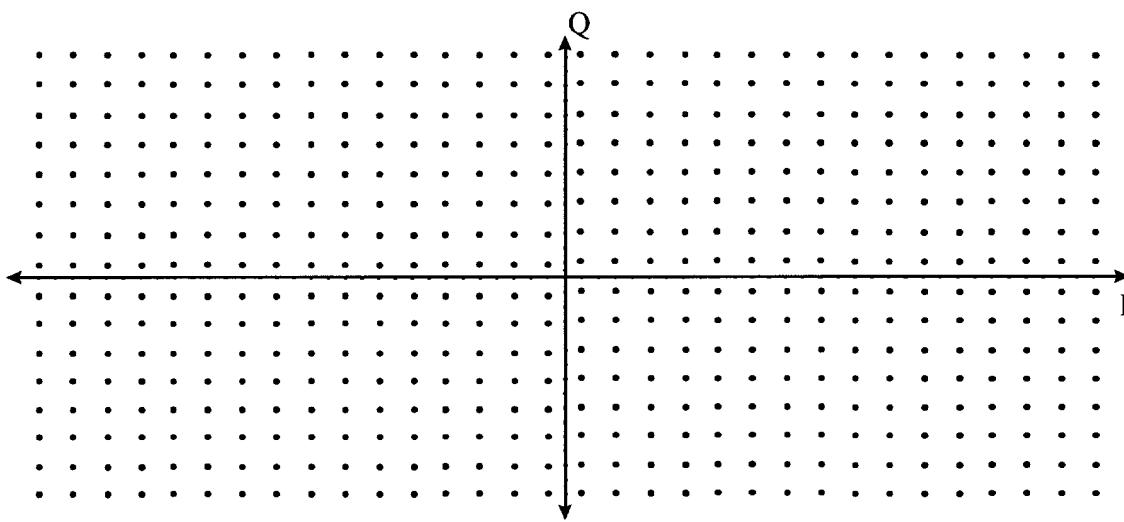


Figure 53

BER for Rate 6/9 512QAM N=6,144 bits AWGN Channel

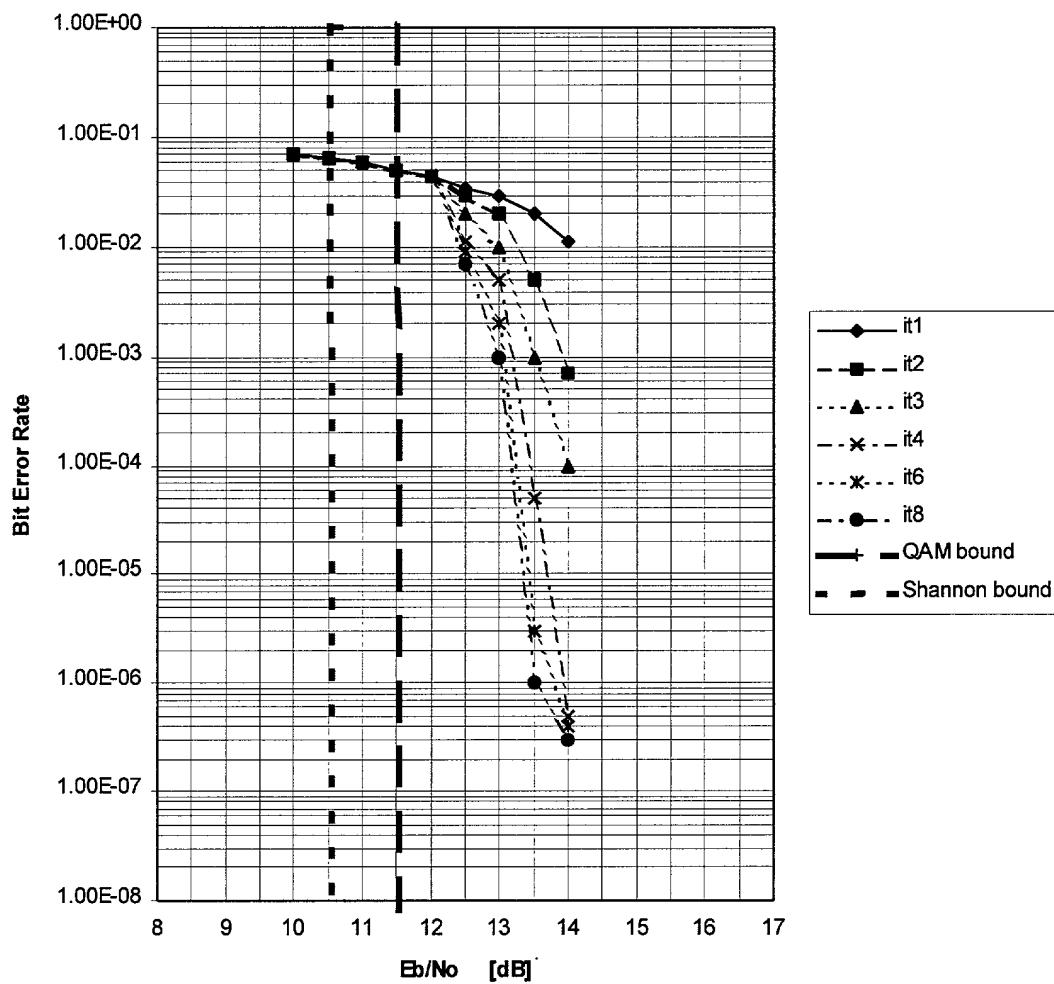


Figure 54

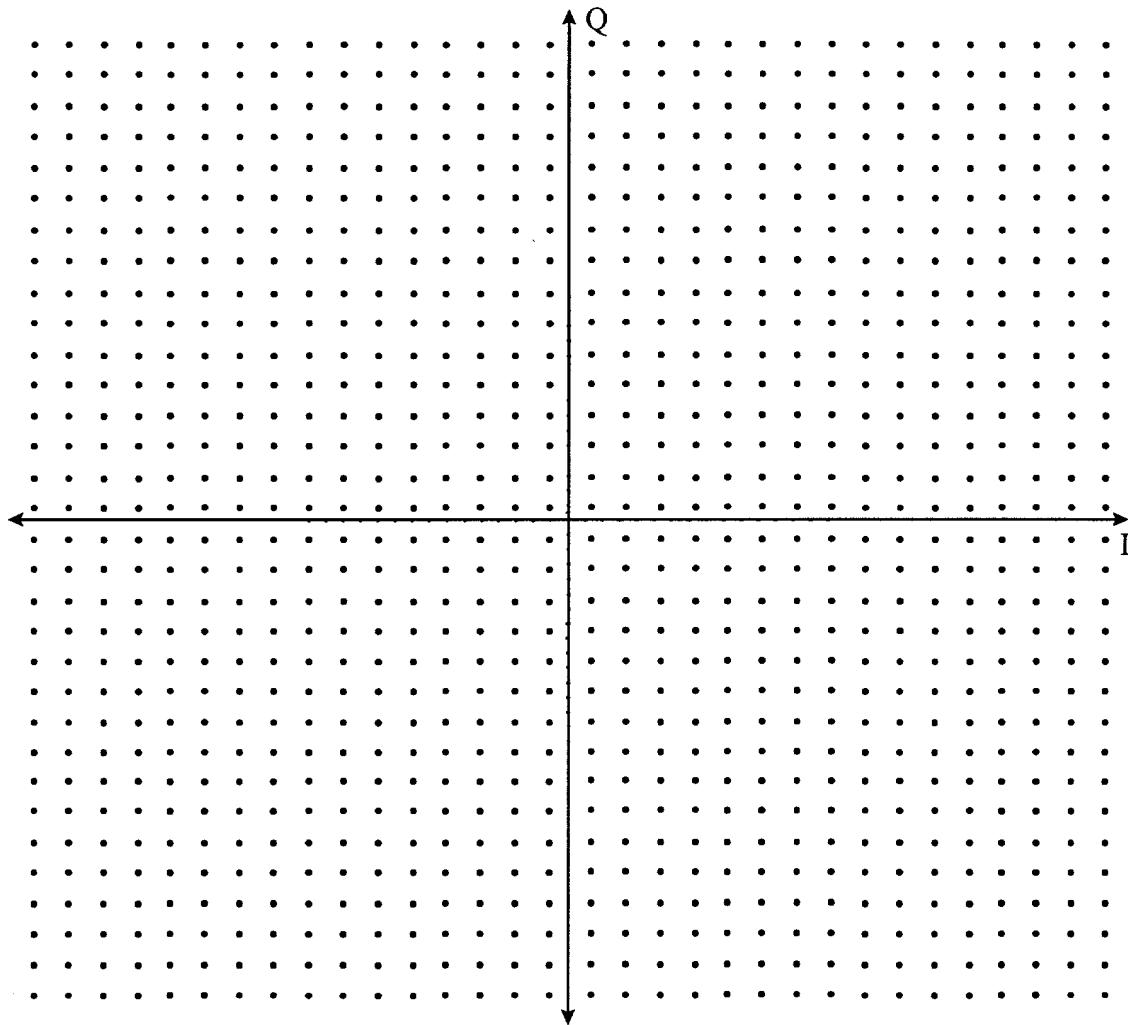


Figure 55

BER for Rate 7/10 1024QAM N=2,044 bits AWGN Channel

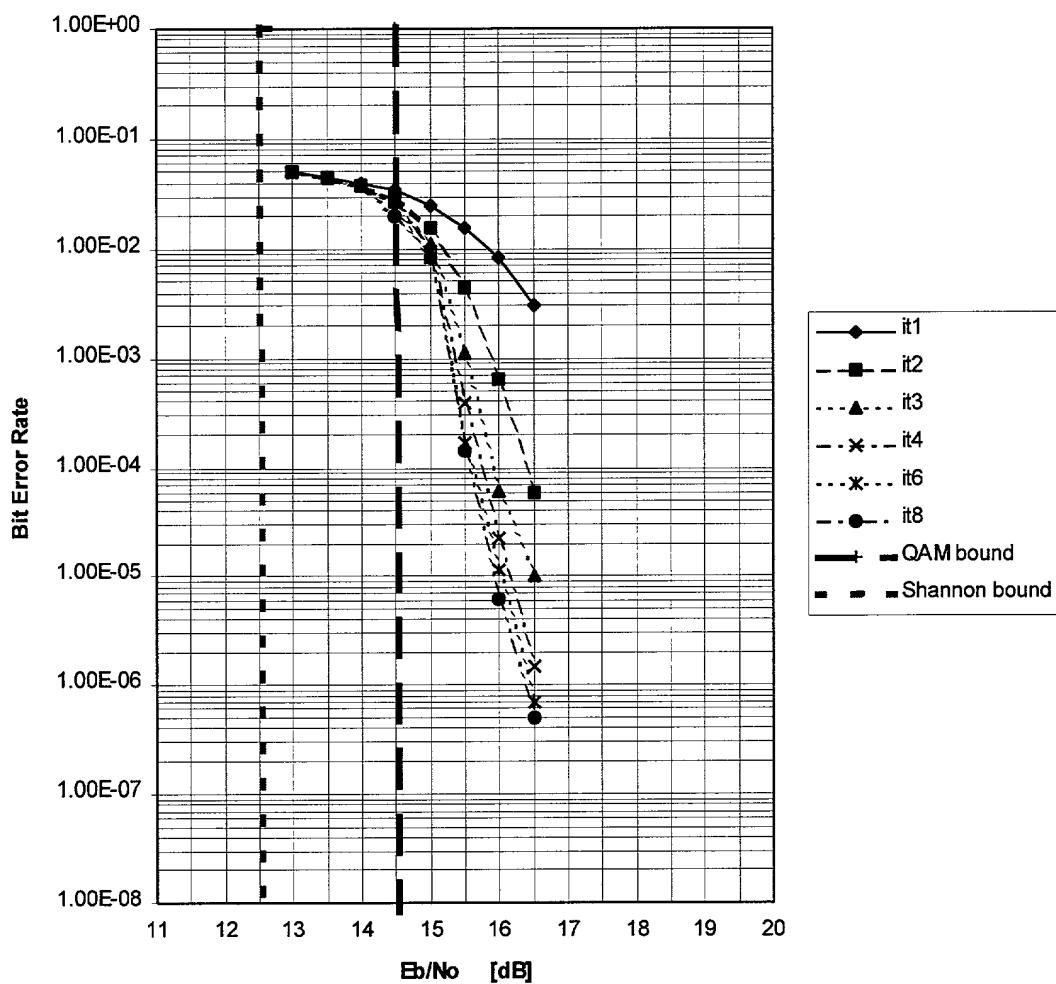


Figure 56

BER for Rate 12/14 16384QAM N=31200 bits AWGN Channel

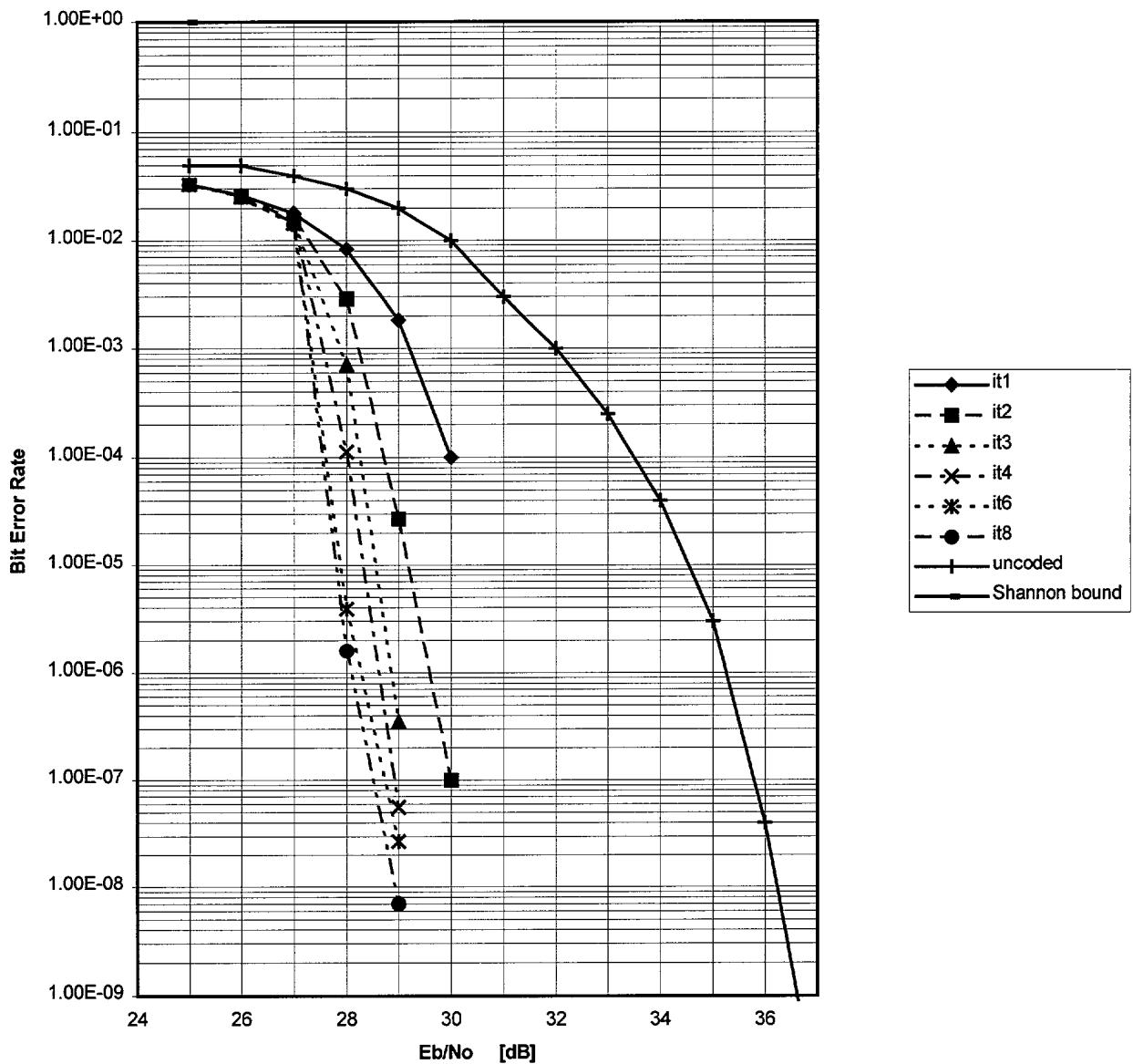


Figure 57

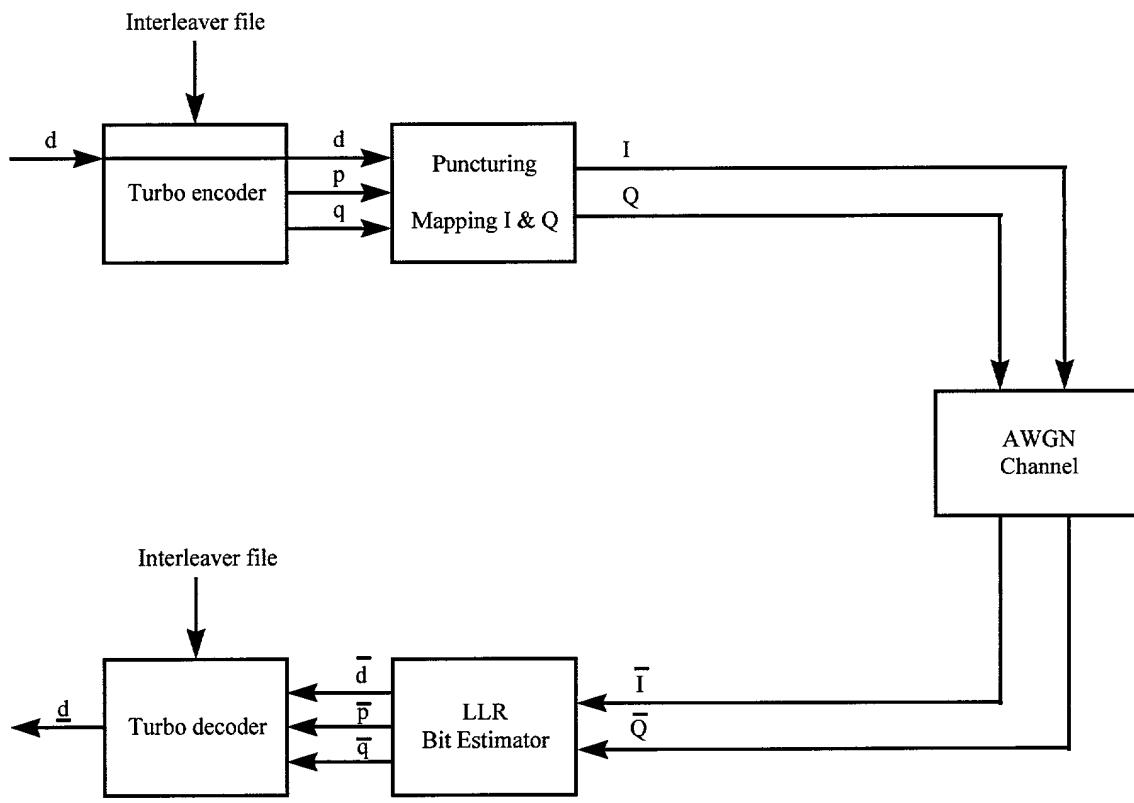


Figure 58

**BER for Rate 2/4 4QAM N=2,048 bits AWGN Channel  
S-type interleaver**

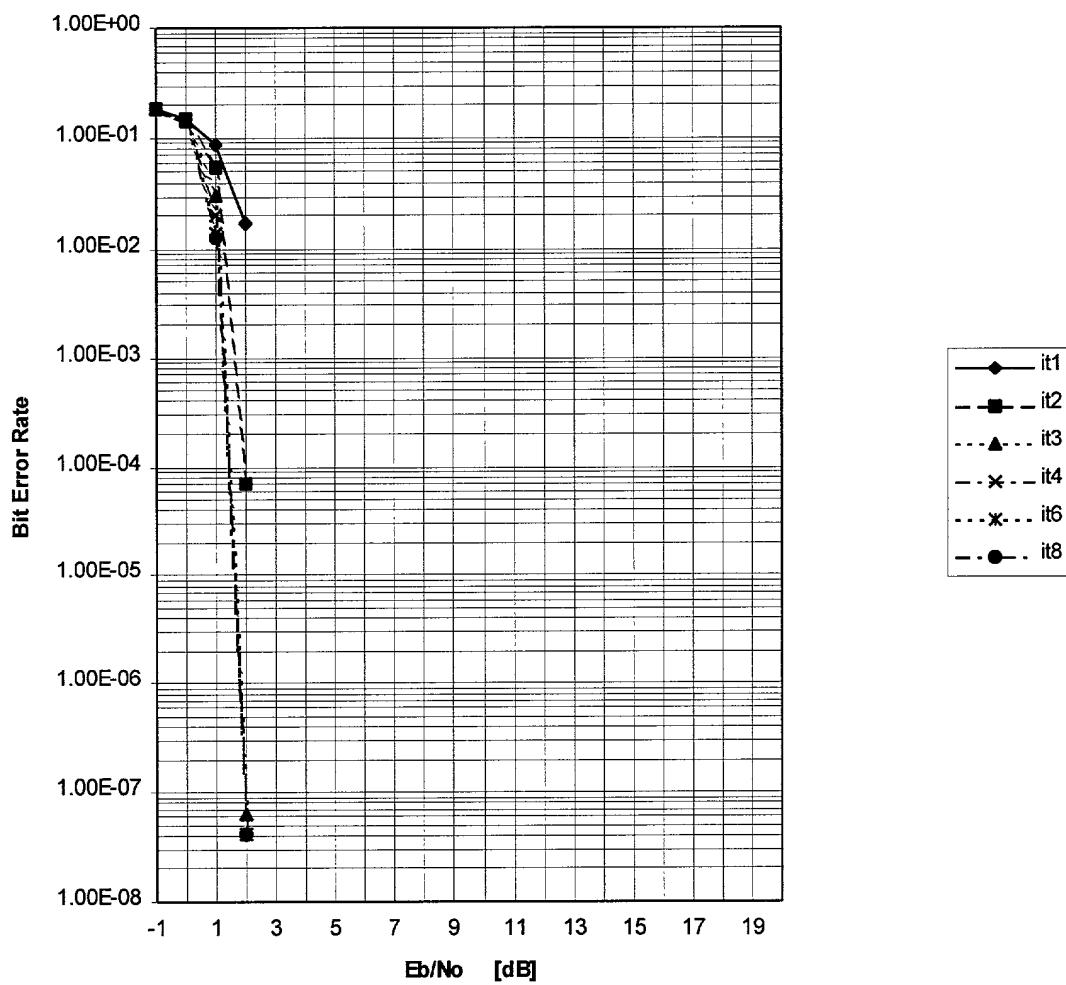


Figure 59

**BER for Rate 2/4 16QAM N=2,048 bits AWGN Channel  
S-type interleaver**

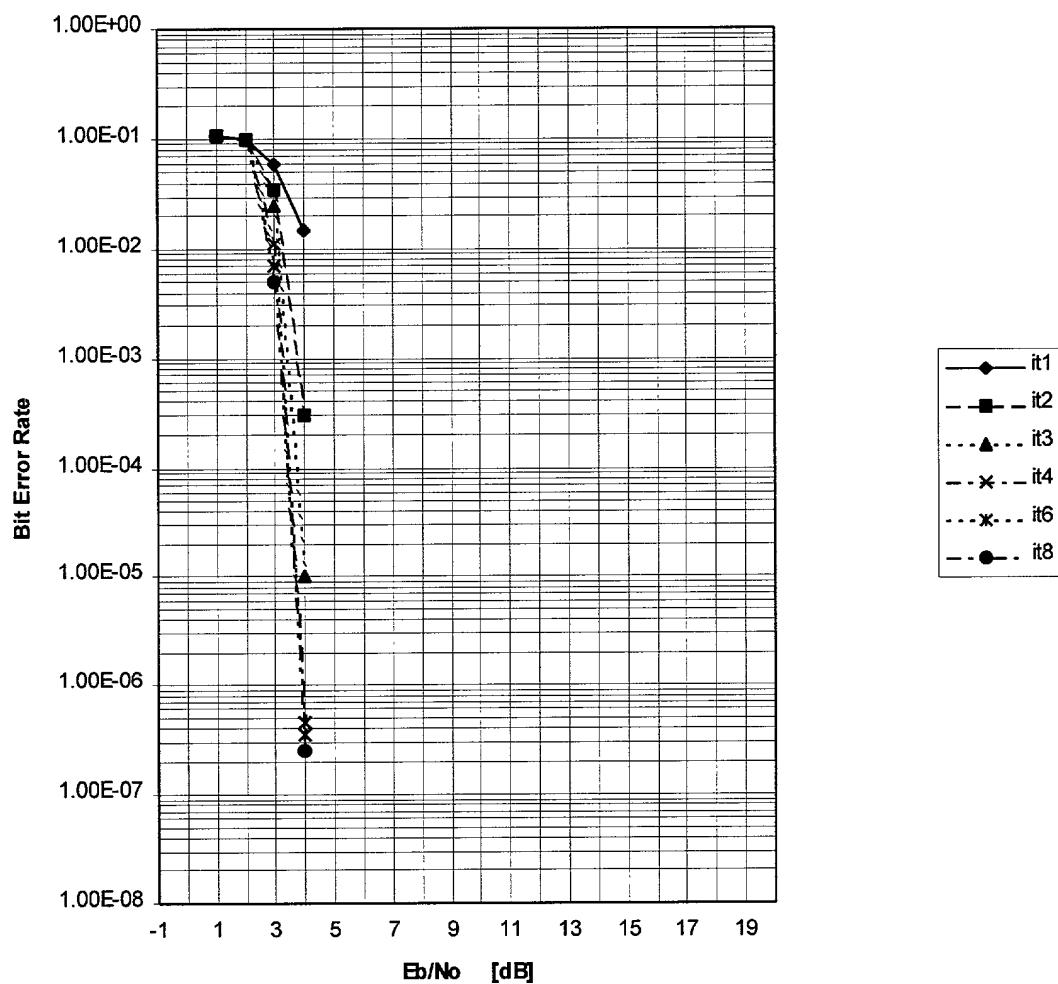


Figure 60

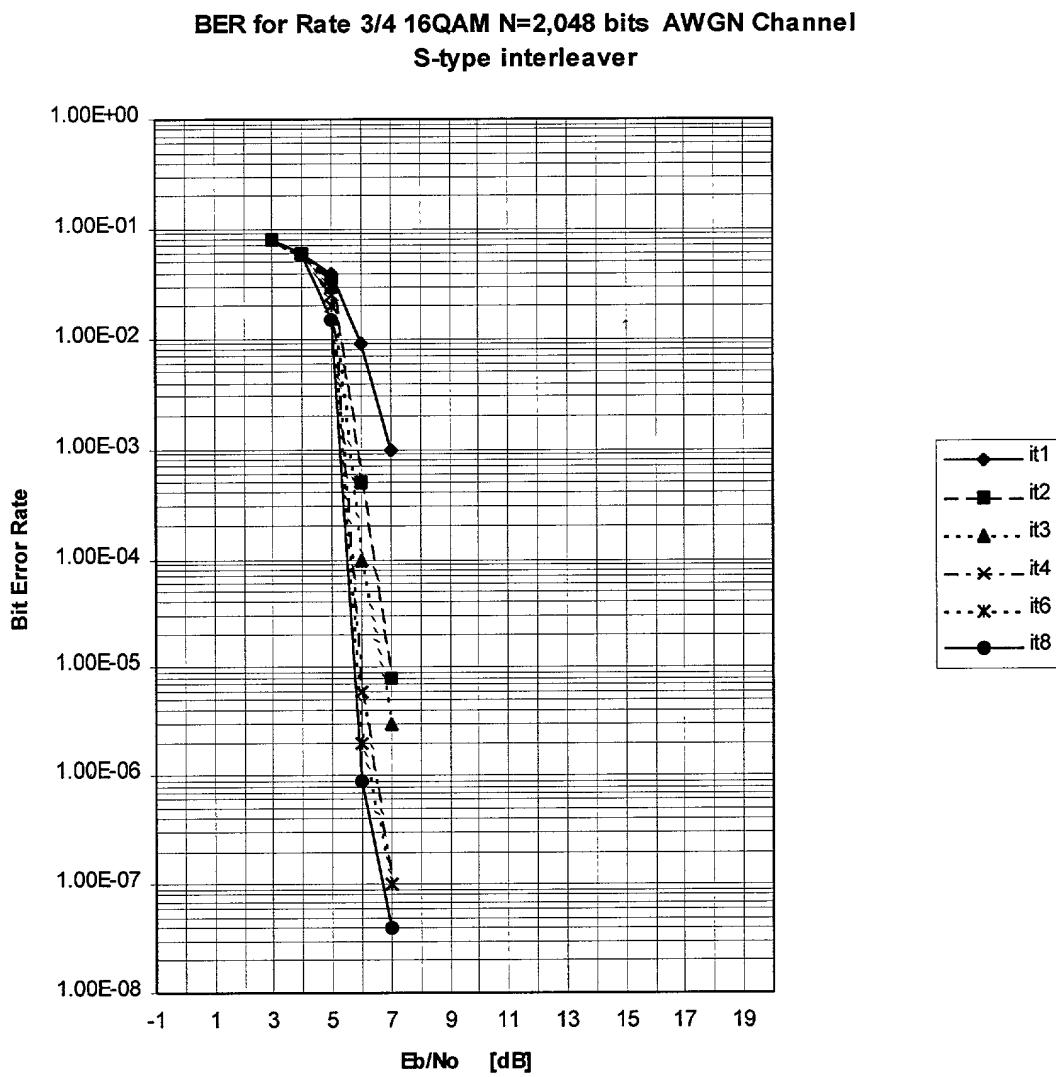


Figure 61

**BER for Rate 4/6 64QAM N=2,048 bits AWGN Channel  
S-type interleaver**

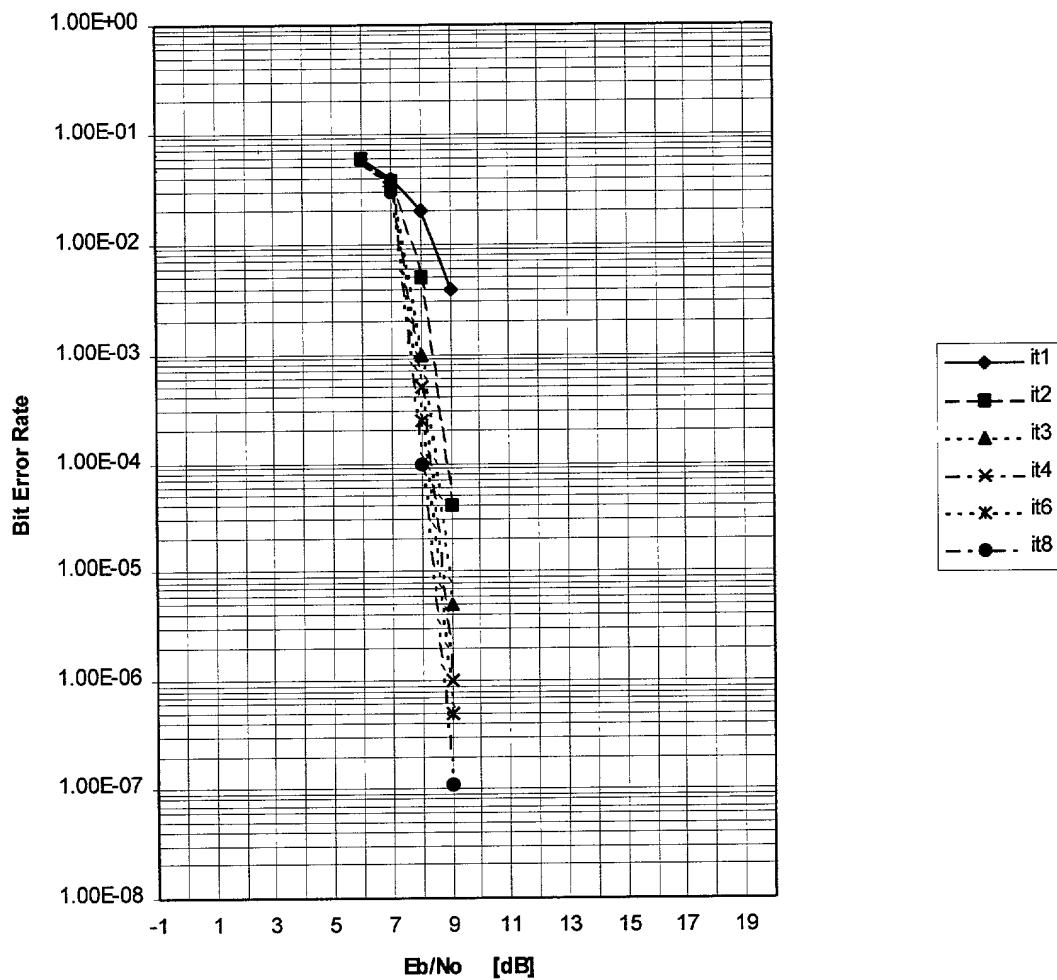


Figure 62

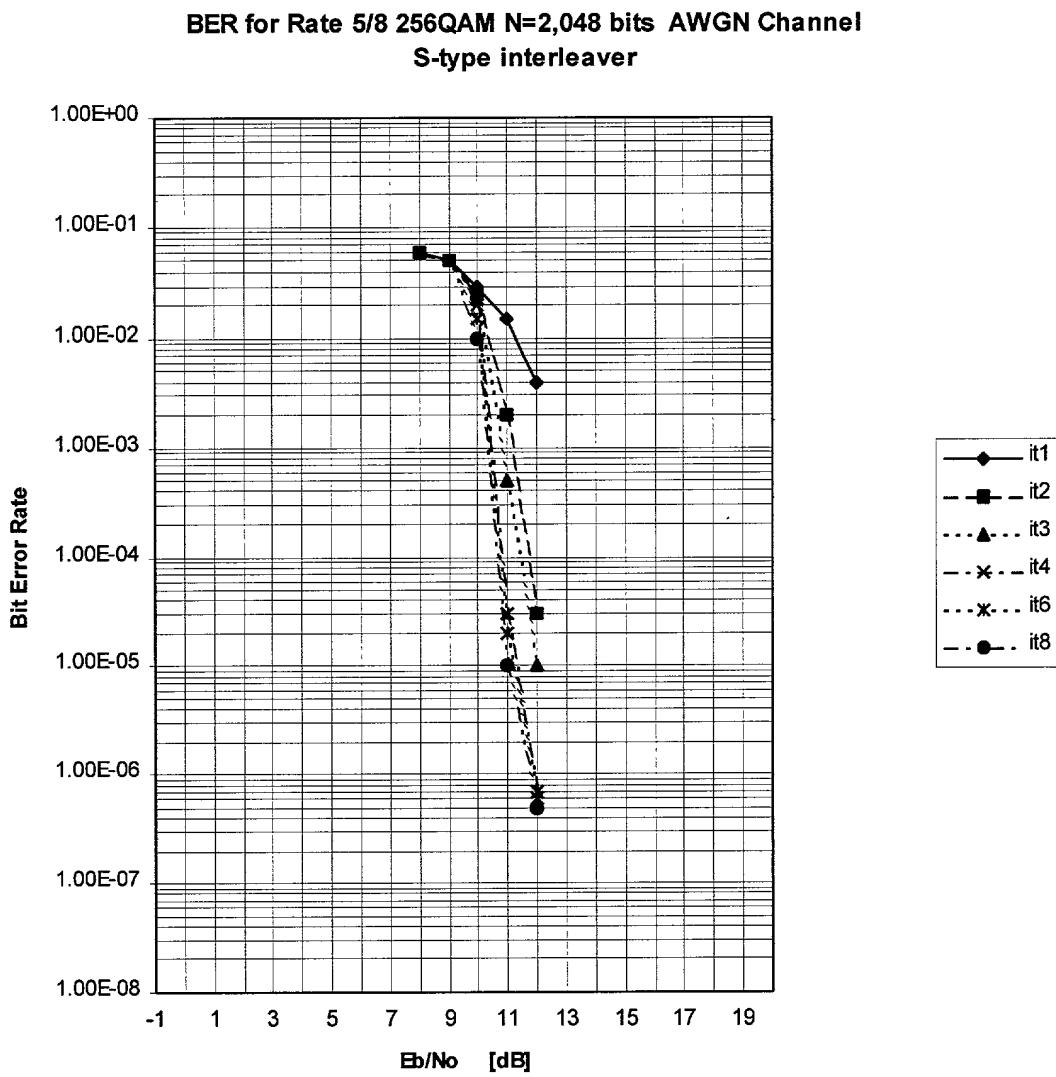


Figure 63

**BER for Rate 6/8 256QAM N=2,046 bits AWGN Channel  
S-type interleaver**

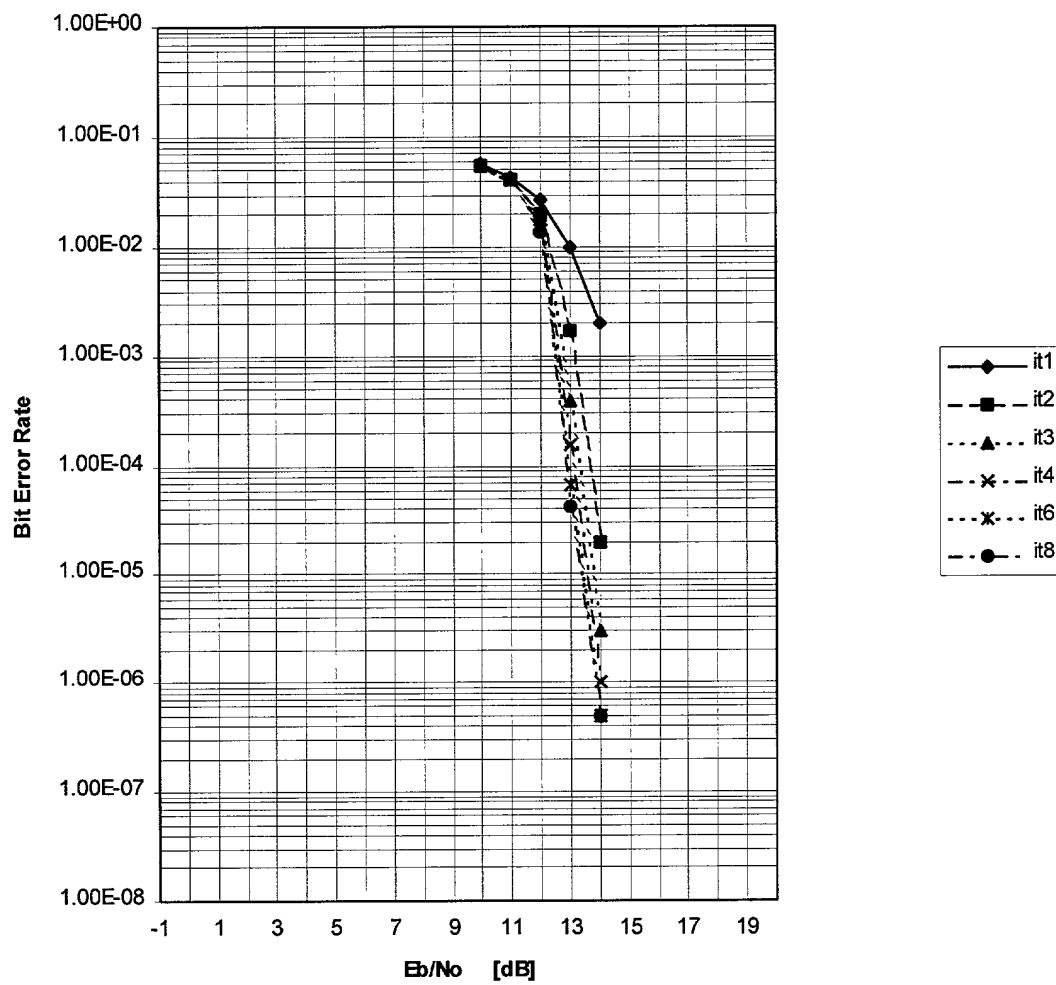


Figure 64

**BER for Rate 7/10 1024QAM N=2,044 bits AWGN Channel  
S-type interleaver**

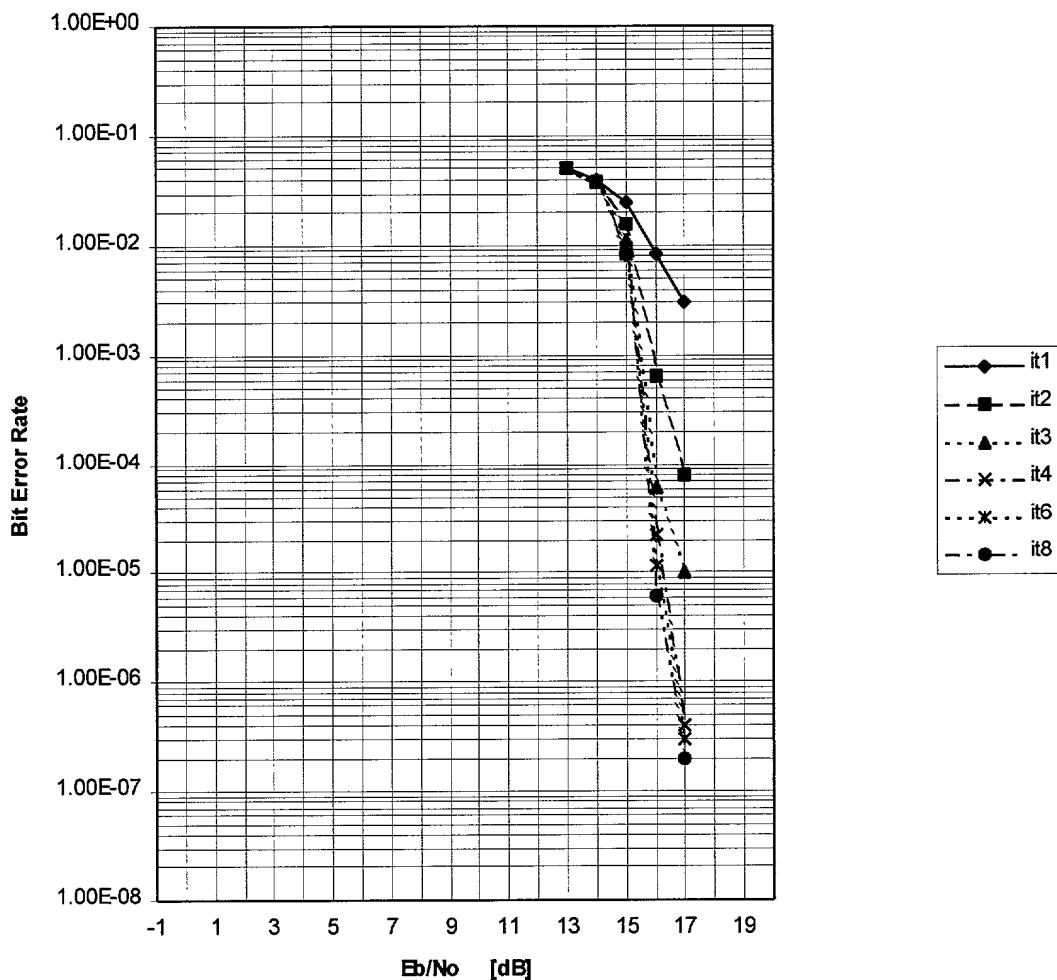


Figure 65

**BER for Rate 2/4 4QAM N=2,100 bits AWGN Channel  
Analytical odd-even smile interleaver**

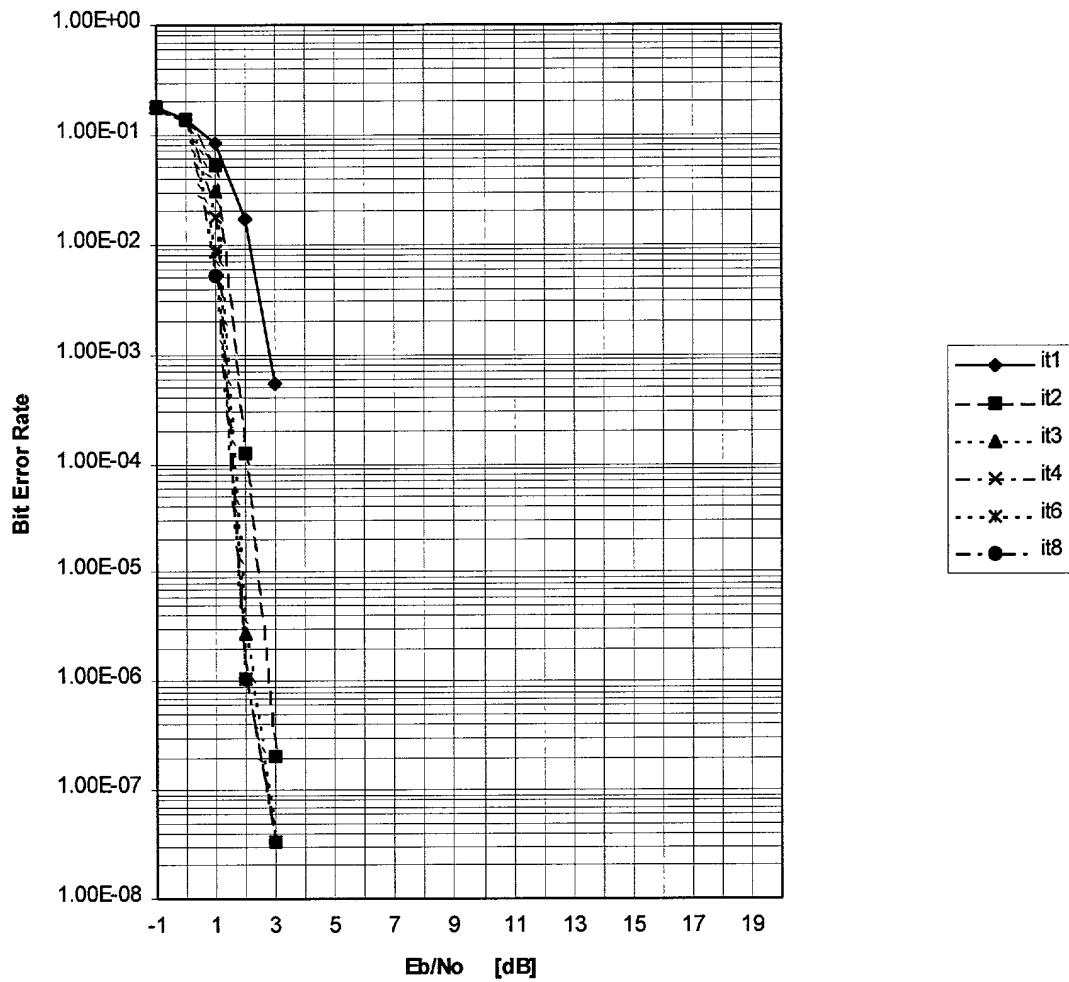


Figure 66

**BER for Rate 2/4 16QAM N=2,100 bits AWGN Channel  
Analytical odd-even smile interleaver**

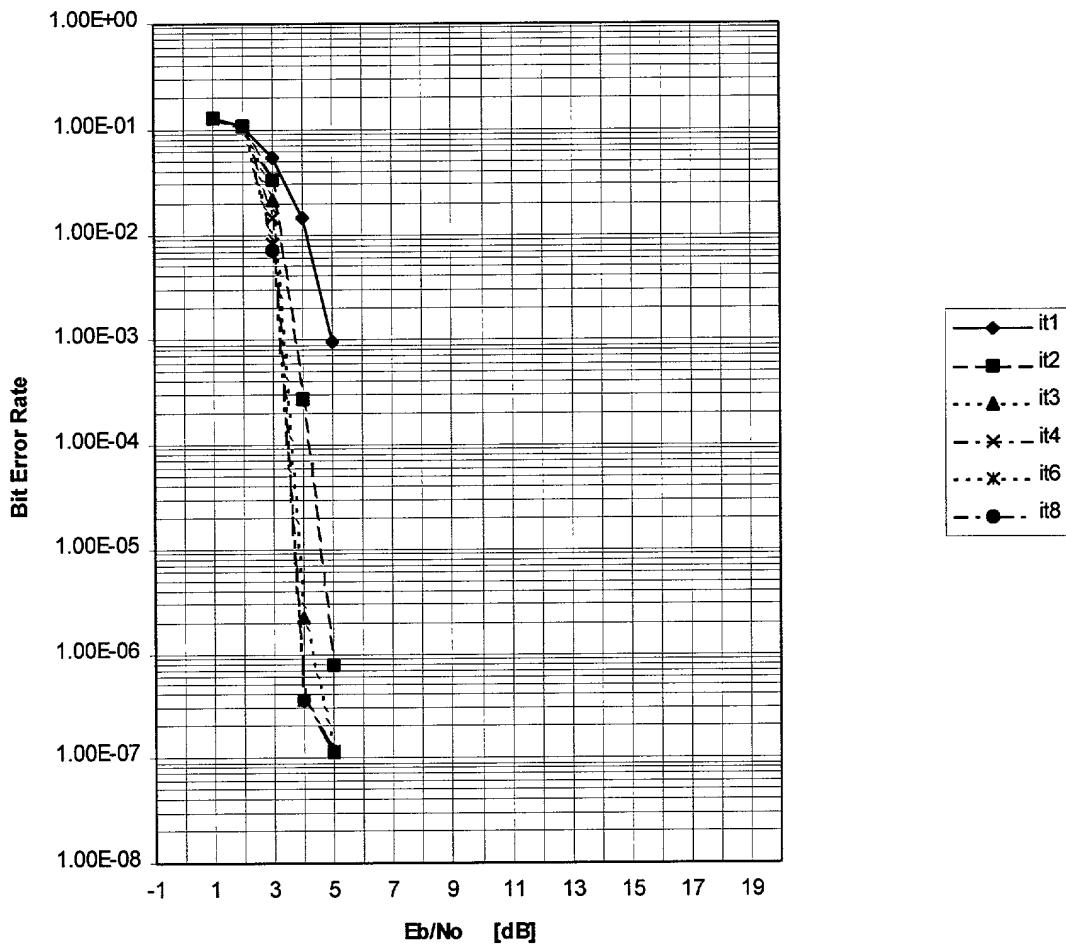


Figure 67

**BER for Rate 3/4 16QAM N=2,100 bits AWGN Channel  
Analytical odd-even smile interleaver**

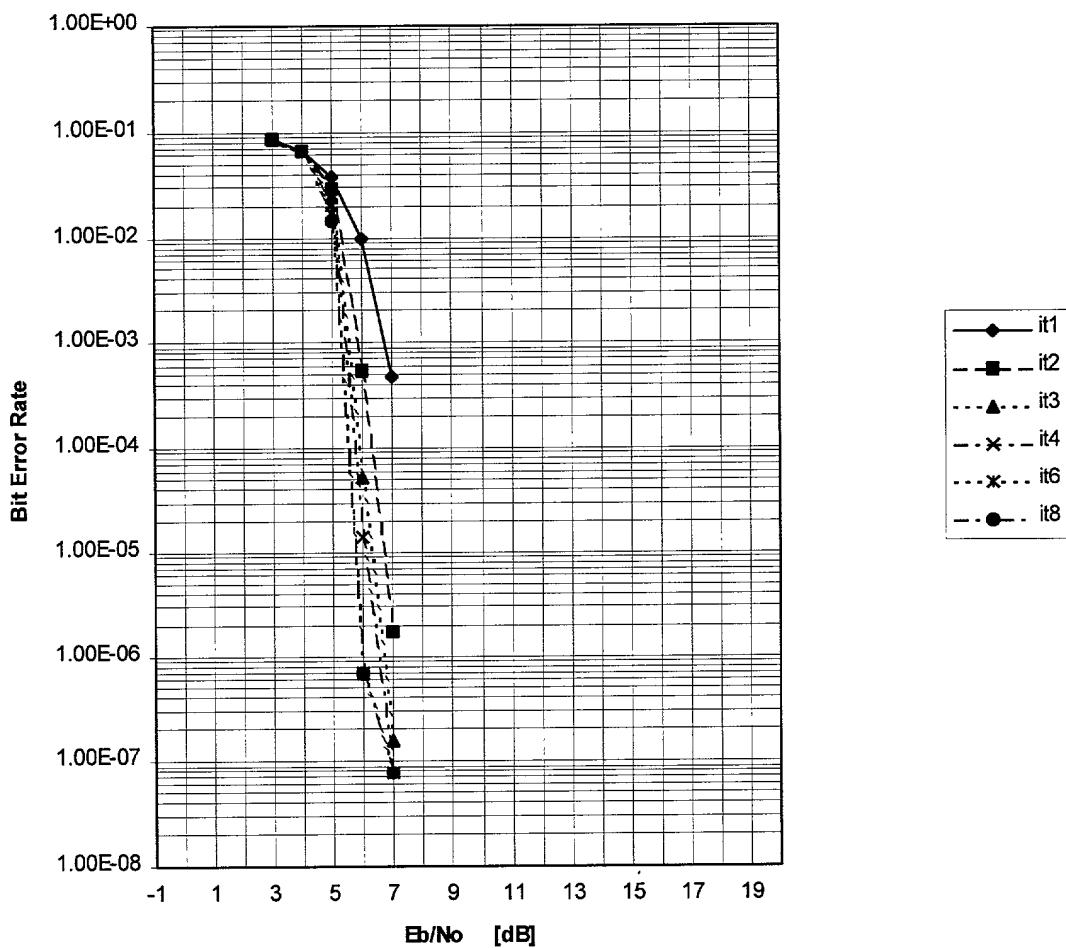


Figure 68

**BER for Rate 4/6 64QAM N=2,100 bits AWGN Channel**  
**Analytical odd-even smile interleaver**

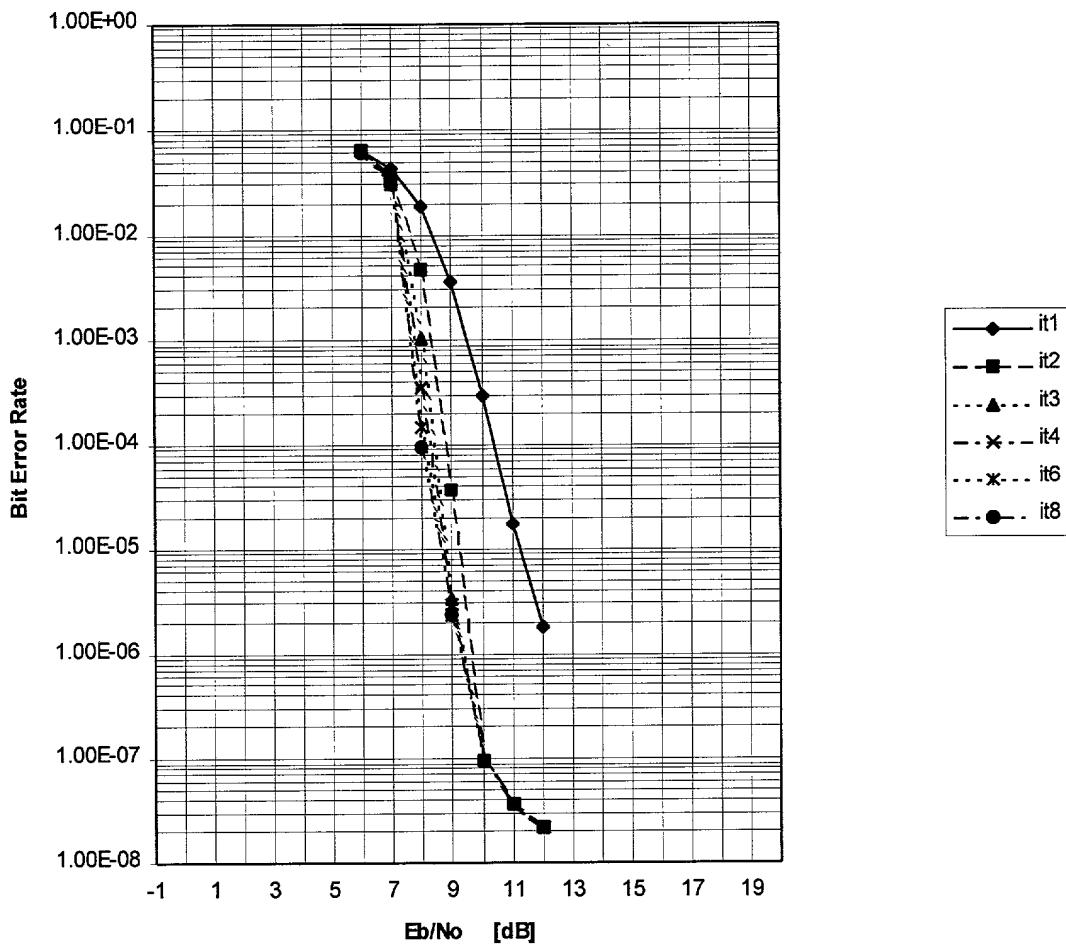


Figure 69

**BER for Rate 5/8 256QAM N=2,100 bits AWGN Channel  
Analytical odd-even smile interleaver**

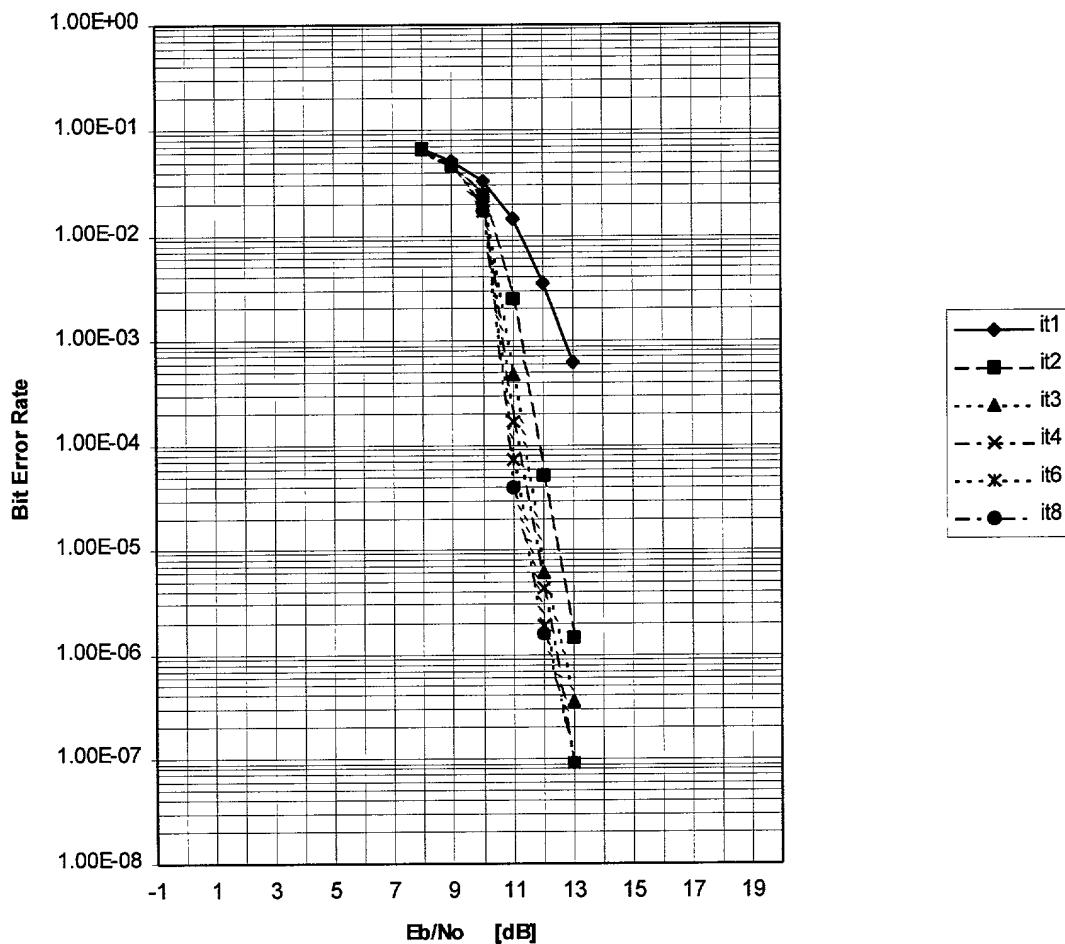


Figure 70

**BER for Rate 6/8 256QAM N=2,100 bits AWGN Channel**  
**Analytical odd-even smile interleaver**

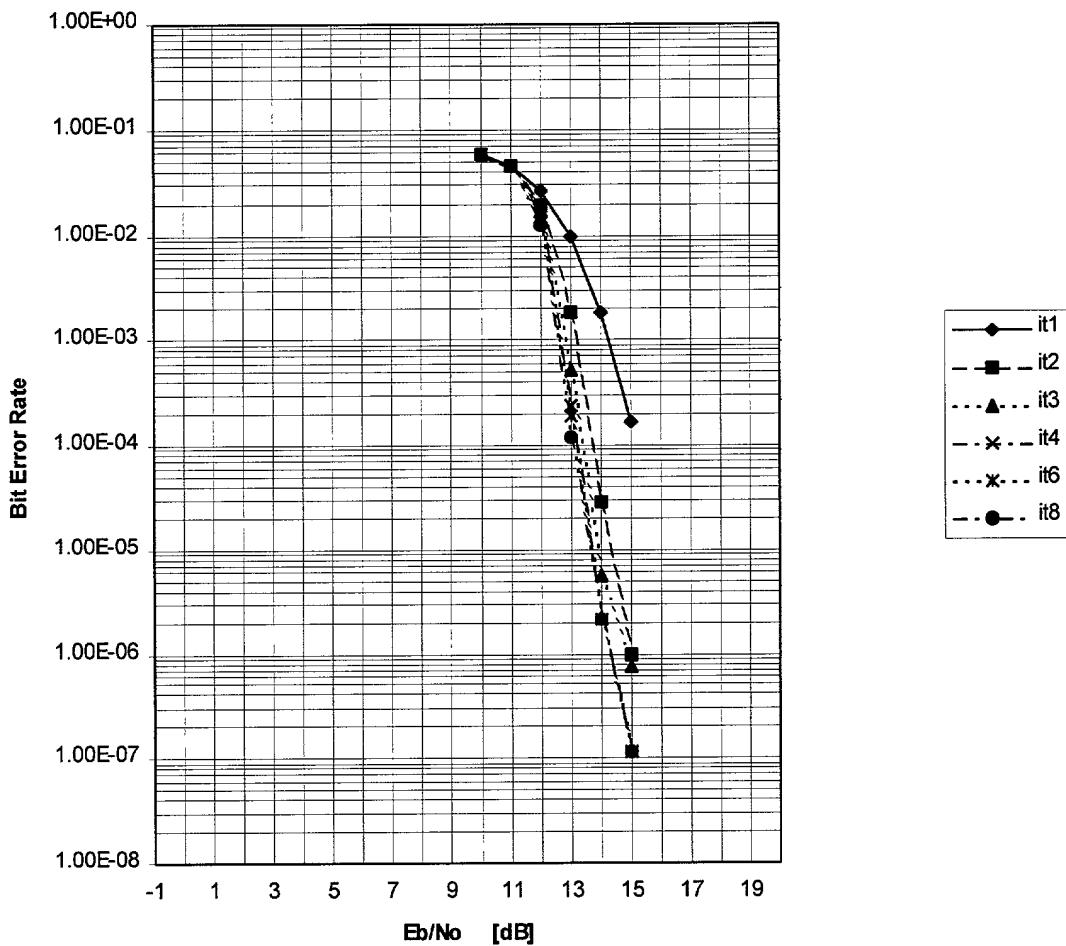


Figure 71

**BER for Rate 7/10 1024QAM N=2,100 bits AWGN Channel  
Analytical odd-even smile interleaver**

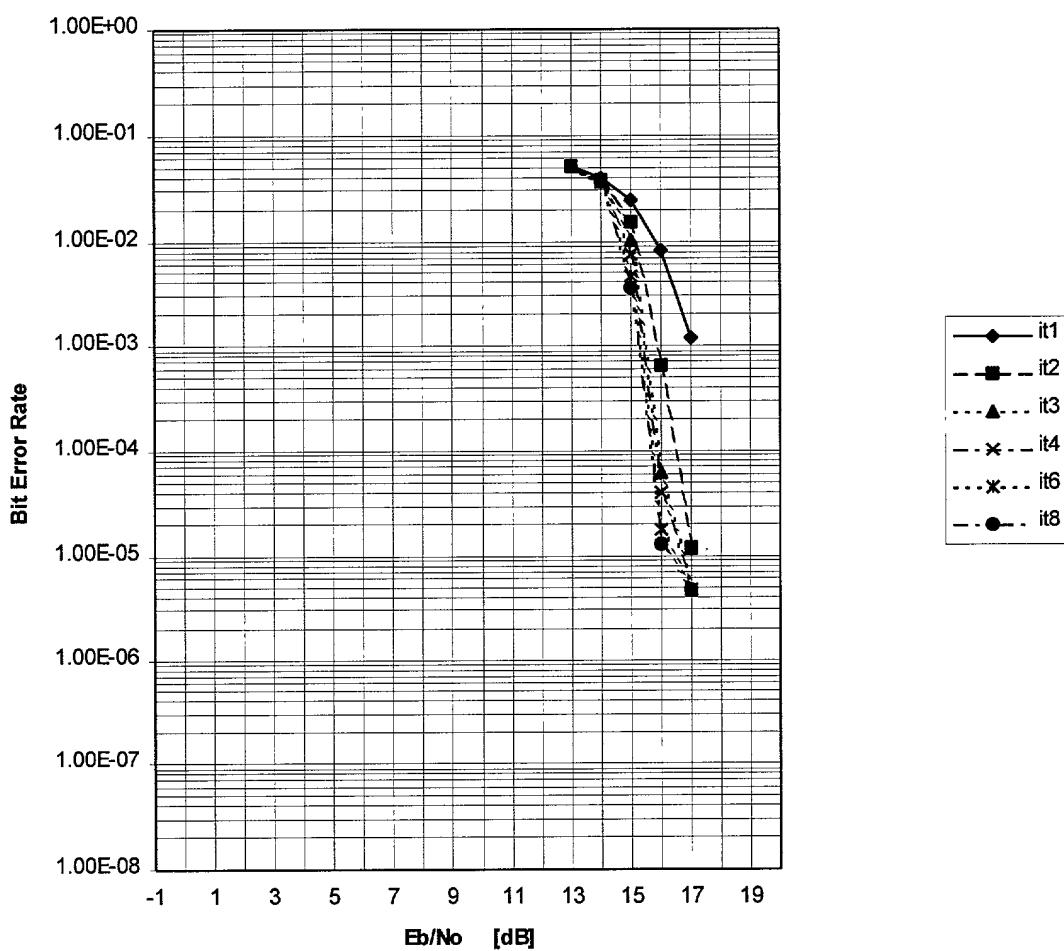


Figure 72

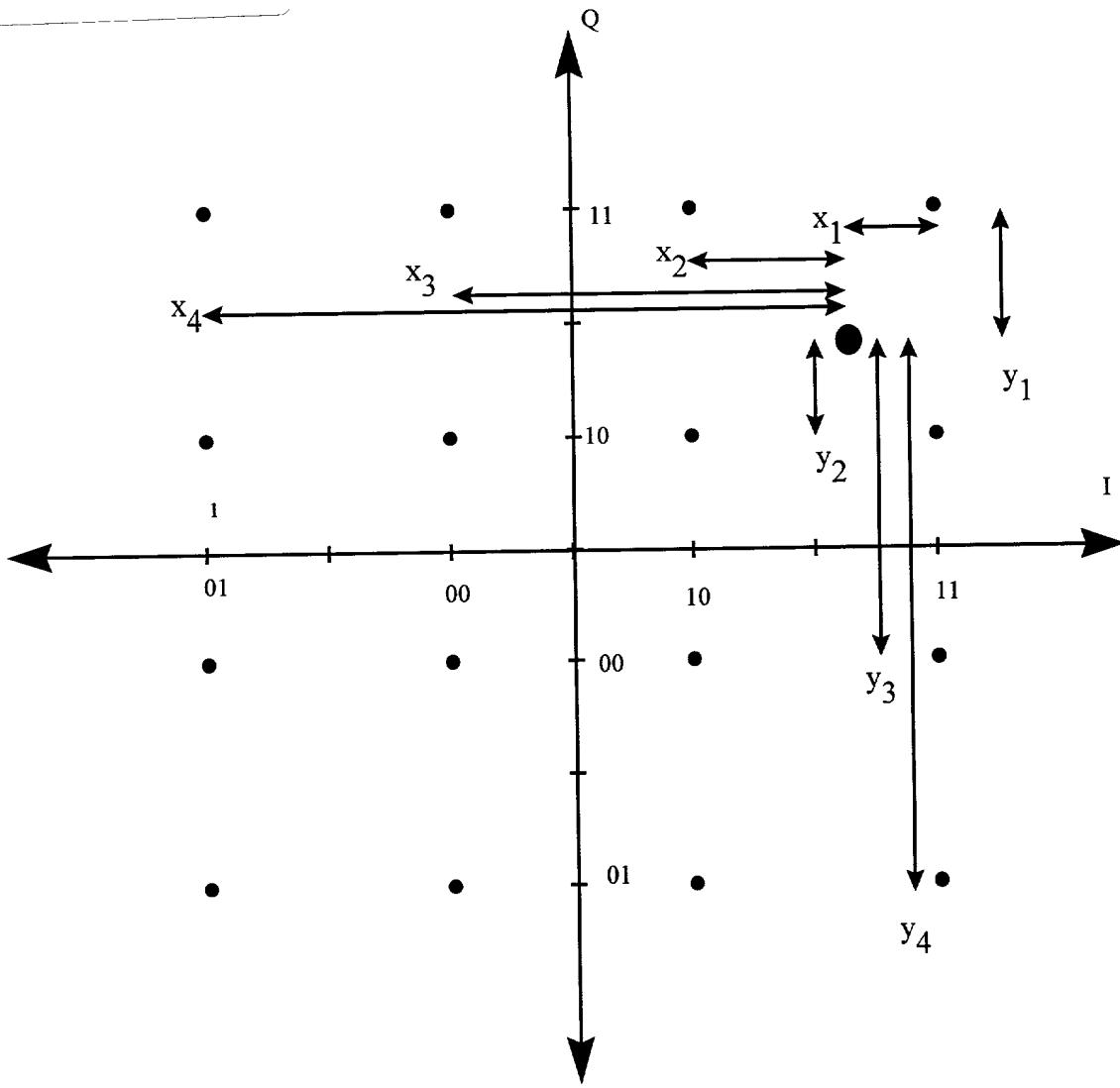


Figure 73

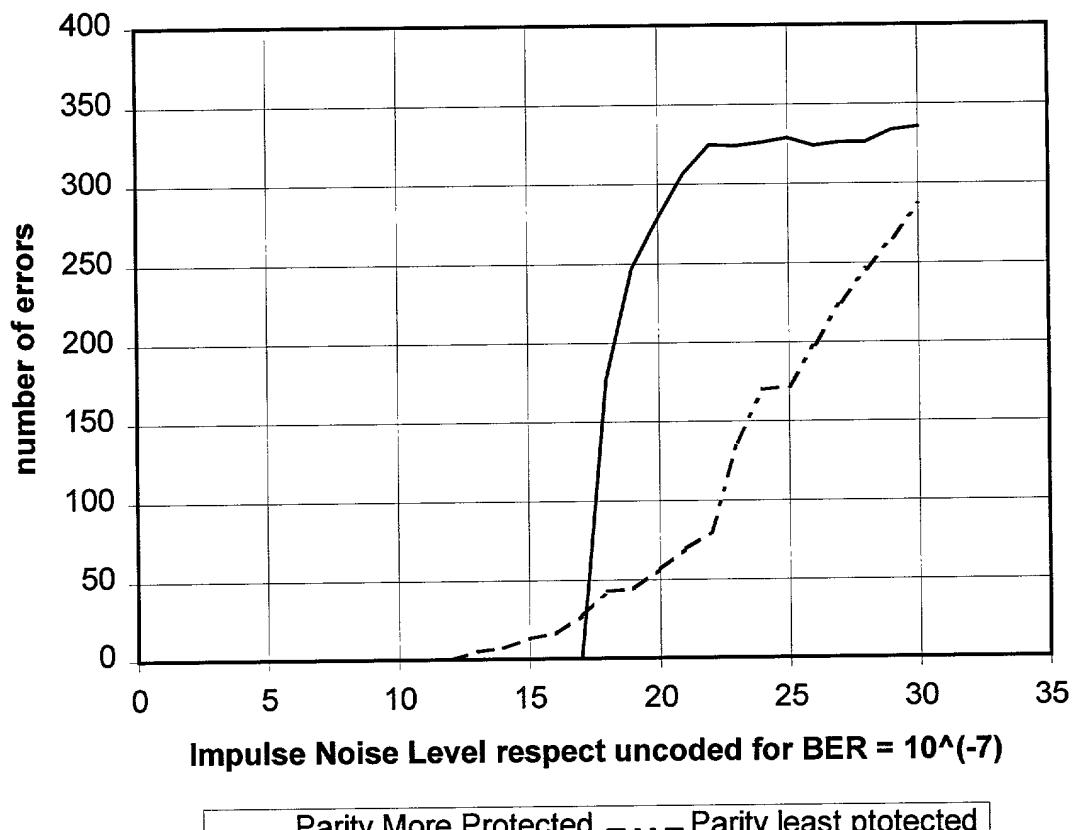


Figure 74

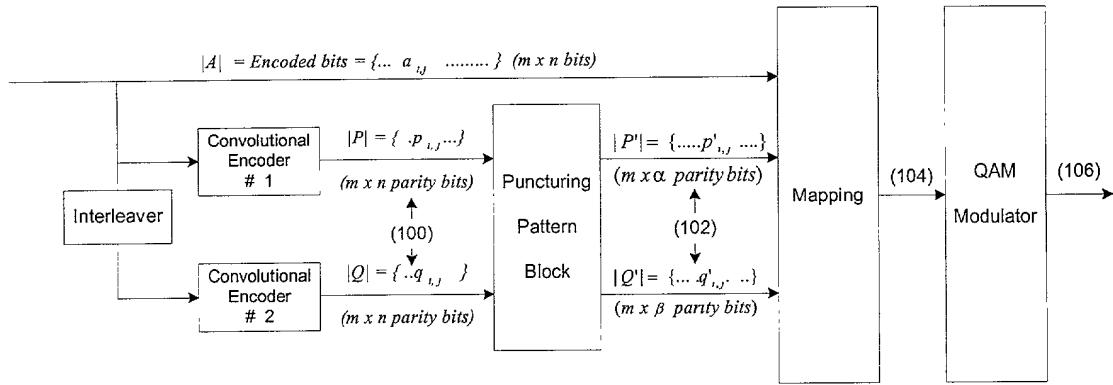


Figure 75

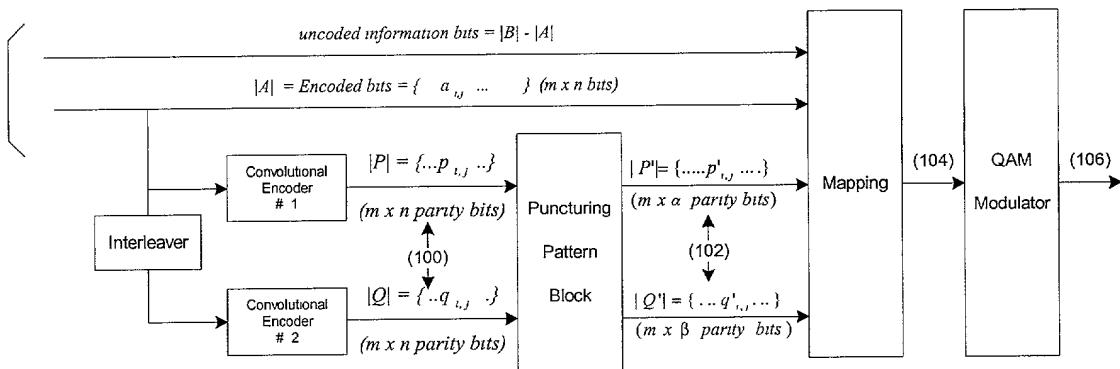


Figure 76

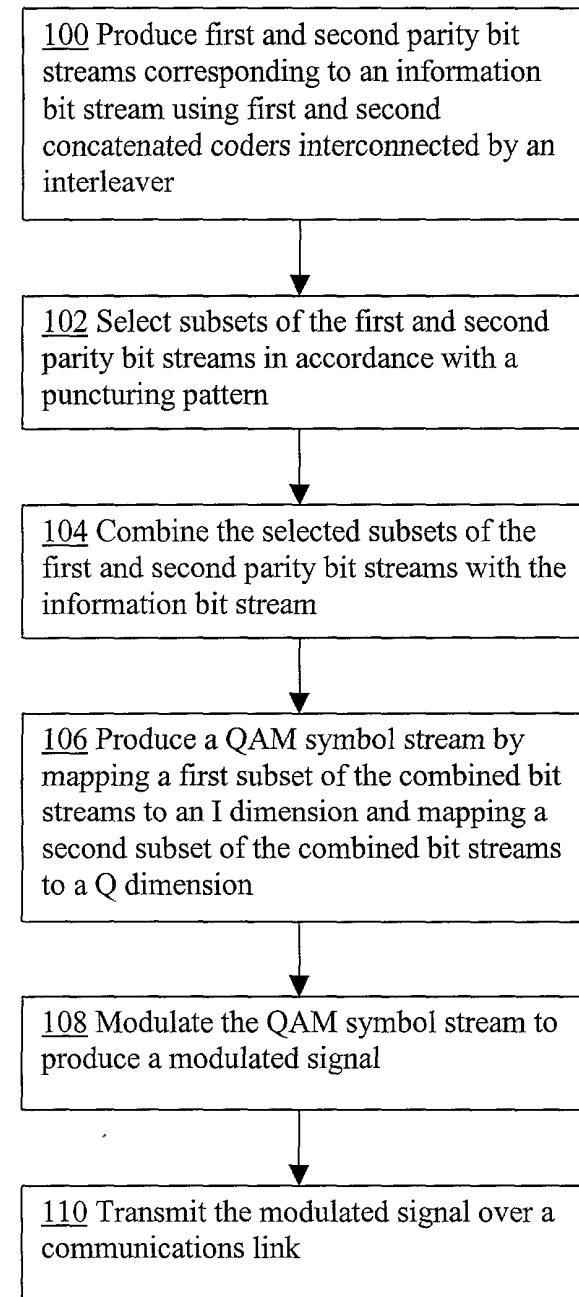


Figure 77

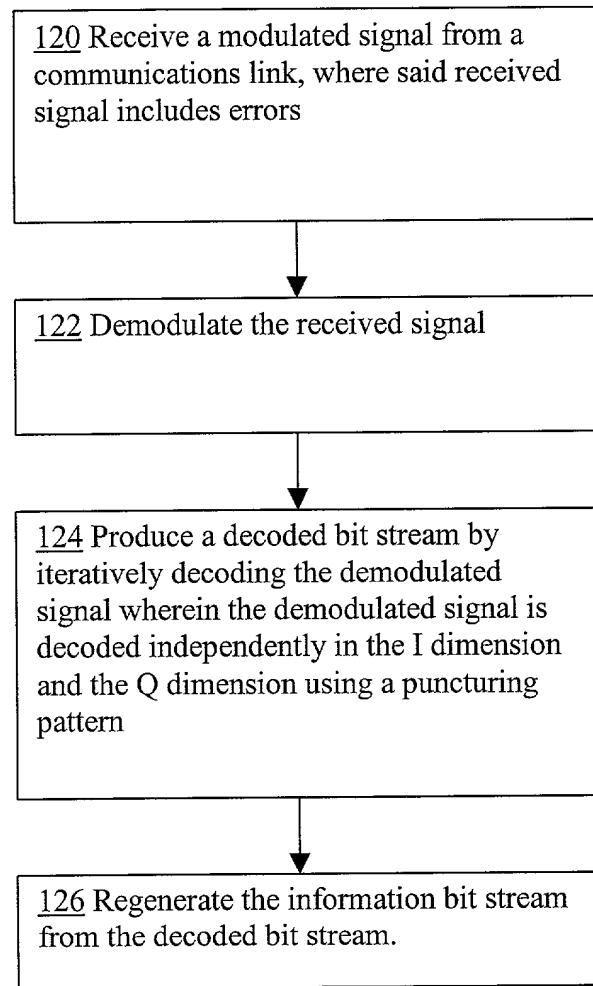


Figure 78

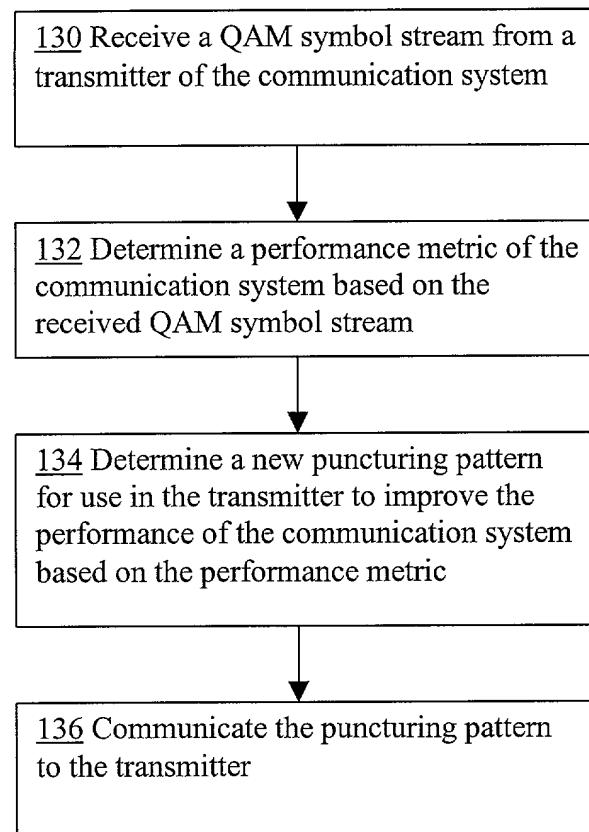


Figure 79